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MOTOR AGE

ALGONQUIN CLIMB PROVES TRUE HILL TEST

CHICAGO, Sept. 17—While lacking the spectacular speed features which characterized it in previous years, the fifth annual hill-climb of the Chicago Motor Club, which was held yesterday at Algonquin, Ill., probably was the most thorough demonstration of the efficiency of motor cars on the grades ever attempted in this country. The climb was made more severe than ever by the use of a new hill which was built expressly for the purpose and which is the only one of its kind in the country. Because of the cars having the climb a grade that averaged 12 percent with one stretch which pitched 26 percent, the speed necessarily was cut down. At the same time this proved to be a good thing, for it brought out more strongly than ever the respective hill-climbing abilities of the various cars competing. Added to this was the fact that Phillips hill, which heretofore has been used for flying start efforts, was made a standing start battle. Despite these handicaps, though, remarkably fast time was made by the cars, all things considered.

So far as results are concerned, the National was the star of the day, winning in every class in which it competed and in addition capturing the Algonquin cup

ALGONQUIN CLIMB RESULTS

Free-for-all	Greiner, National
*Under 600 inches	Greiner, National
Under 300 inches	Caillonette, Moon
*601-750 inches	Greiner, National
451-600 inches	Greiner, National
301-450 inches	Greiner, National
231-300 inches	Geinaw, Falcar
161-230 inches	Stickney, Velie
*$2,001-$3,000	Seek, National
$1,601-$2,000	Hearne, Jackson
$1,201-$1,600	Dull, Parry
$ 801-$1,200	Rice, Ford
*$ 800 and under	Lincoln, Brush

FORMULA EVENTS

*$2,001-$3,000	Seek, National
$1,601-$2,000	Monsen, Marion
$1,201-$1,600	Monckmeier, Staver
$ 801-$1,200	Pendleton, Cartercar
*$ 800 and under	Lincoln, Brush

* Walkovers

ARTHUR GREINER IN NATIONAL, WINNER OF ALGONQUIN CUP, CLIMBING THE NEW HILL

which is the challenge trophy given by the residents of Algonquin, and which goes to the car making the fastest total time on the two hills regardless of class. In the past this has been held by F. W. Leland in a Stearns six, and by Len Zengel in a Chadwick six, but this time it goes to Arthur W. Greiner, of Chicago, who was runner-up to Zengel last year, and who did the two hills yesterday in the total time of :57⅘, which is ⅕ second better than his closest competitor, Eddie Hearne in a German Benz, made. Strange to say, this time was not made in the free-for-all, which class in previous years always had developed the winner of the trophy. It came in the 301-450 class in which Greiner climbed Algonquin hill in :17⅘ and Phillips hill in :39⅘. The total time in the free-for-all was :59⅕, also made by Greiner who scored a victory in this last named event as well as capturing the 301-450, the 451-600, the 601-750 and the under 600 classes. In the 601-750 and the under 600 classes Greiner had no opposition.

Two other firsts were added to the National string by Seek who won the $2,001-$3,000 class both on time and under the formula, in which he had a walkover. Hearne in the Benz ran twice but did not win either time, and he comes out of the fray with two second places to his credit in addition to getting the record on the new hill which he made in :17⅘ or at the rate of :39.7 miles per hour. Hearne had an excellent chance to win the Algonquin cup for he went into the afternoon fight with ⅘ second lead over his rival, Greiner. However, the Benz was dull of speed on the long slope in the afternoon.

START OF AFTERNOON CLIMB

Although the National was very much in the limelight in the larger events, still there were several makes of cars which did exceptionally well in their respective classes, among them being the Falcar, Staver, Moon, Jackson, Ford, Brush, Cartercar and Marion which were winners in their respective classes. Indeed, Gelnaw in the Falcar No. 22 was a most important factor in the fight for the Algonquin cup, being only ⅕ second behind Hearne for the honor of being runner-up to Greiner. The morning climb, however, was the stone in the Falcar's road to fame, Gelnaw requiring :19⅘ to make the 1,000-foot climb. He was more at home on Phillips hill in the afternoon and climbed that ½-mile grade in :40, which is ⅕ second slower than Greiner made it. Gelnaw's total time of :59⅘ ranks fifth in the rela-

TABLE SHOWING RELATIVE TIME STANDING MORNING, AFTERNOON AND FINISH IN ALGONQUIN CLIMB

RELATIVE STANDING, MORNING TIME

Average Time, :24.13

No.	Car and driver	Time
59	Benz, Hearne	:17⅘
36	National, Greiner	:17⅘
55	National, Greiner	:18⅕
38	National, Greiner	:18⅖
50	National, Greiner	:18⅘
17	National, Seek	:19
39	Benz, Hearne	:19
52	Velie, Stickney	:19⅕
26	Moon, Caillonette	:19⅕
51	Velie, Cooney	:19⅖
40	National, Greiner	:19⅗
22	Falcar, Gelnaw	:19⅗
32	Velie, Cooney	:19⅗
46	Moon, Caillonette	:19⅘
54	Stoddard-Dayton, Englebeck	:20
49	Falcar, Hughes	:20
48	Falcar, Pearce	:20⅖
31	Velie, Stickney	:20⅗
33	Midland, Ireland	:20⅘
53	Midland, Ireland	:21
21	Parry, Dull	:21
23	Falcar, Pearce	:21
34	Kisselkar, Branstetter	:21
57	Ford, Gruener	:21
25	Pullman, Jackson	:21⅕
29	Falcar, Hughes	:21⅘
47	Falcar, Gelnaw	:22
24	Kisselkar, Schoeneck	:22⅕
45	Kisselkar, Schoeneck	:22⅖
20	Staver, Monckmeier	:22⅖
28	McIntyre, Turgeon	:22⅘
18	Velie, Stickney	:23⅕
11	Velie, Cooney	:23⅖
27	Marion, Monsen	:23⅖
44	McIntyre, Turgeon	:23⅗
43	Marion, Monsen	:23⅘
37	Jackson, Hearne	:24
56	Ford, Rice	:24
12	Jackson, Hearne	:24
7	Parry, Dull	:24⅘
35	Lexington, Mattoon	:25
8	Moline, Salisbury	:26
58	Lexington, Mattoon	:27
41	Henry, Moritz	:27⅖
6	Ford, Rice	:27⅘
30	Imperial, Killip	:28
16	Kisselkar, Branstetter	:28⅗
14	Inter-State, Seek	:29⅕
15	Marion, Monsen	:29⅘
10	Staver-Chicago, Monckmeier	:31
5	Ford, Gruener	:31
3	Cartercar, Pendleton	:32
4	Cartercar, Hammerly	:35⅘
2	Oakland, Harding	:35⅘
1	Brush, Lincoln	1:17

RELATIVE STANDING ON TOTAL TIME

Average time, 1:12:53

No.	Car	A. M. Time	P. M. Time	Total Time
36	National	:17⅘	:39⅘	:57⅘
38	National	:18⅘	:39⅘	:58⅘
55	National	:18⅕	:41	:59⅕
59	Benz	:17⅘	:42	:59⅖
22	Falcar	:19⅗	:40	:59⅗
50	National	:18⅘	:41	:59⅘
40	National	:19⅗	:41	1:00⅗
51	Velie	:19⅗	:41⅘	1:00⅗
39	Benz	:19	:42	1:01
32	Velie	:19⅗	:42	1:01⅗
46	Moon	:19⅘	:41⅘	1:01⅗
54	Stoddard-Dayton	:20	:41⅘	1:01⅘
31	Velie	:20⅗	:41⅘	1:02
52	Velie	:19⅕	:42⅘	1:02
47	Falcar	:22	:40⅕	1:02⅕
26	Moon	:19⅕	:43⅕	1:02⅖
49	Falcar	:20	:43⅘	1:03⅘
48	Falcar	:20⅖	:44⅘	1:05
17	National	:19	:46	1:05
53	Midland	:21	:44⅘	1:05⅘
21	Parry	:21	:45	1:06
23	Falcar	:21	:45⅕	1:06⅕
34	Kisselkar	:21	:45⅖	1:06⅖
25	Pullman	:21⅕	:46⅖	1:07⅖
56	Ford	:24	:44	1:08
57	Ford	:21	:48	1:09
18	Velie	:23⅕	:46⅕	1:09⅖
20	Staver	:22⅘	:46⅘	1:09⅗
43	Marion	:23⅘	:46⅗	1:10
12	Jackson	:24	:46	1:10
45	Kisselkar	:22⅖	:48	1:10⅖
29	Falcar	:21⅘	:48⅗	1:10⅖
37	Jackson	:24	:46⅘	1:10⅘
24	Kisselkar	:22⅖	:49	1:11⅖
33	Midland	:20⅘	:50⅗	1:11⅖
11	Velie	:23⅖	:49⅖	1:12⅗
44	McIntyre	:23⅗	:49⅕	1:12⅘
27	Marion	:23⅗	:50	1:13⅗
28	McIntyre	:22⅘	:52⅘	1:15⅗
7	Parry	:24⅘	:50⅘	1:15⅗
35	Lexington	:25	:52⅘	1:17⅘
30	Imperial	:28	:50⅗	1:18⅗
58	Lexington	:27	:52	1:19
6	Ford	:27⅘	:53⅘	1:21⅗
16	Kisselkar	:28⅗	:54	1:23⅗
8	Moline	:26	:57⅘	1:23⅘
14	Inter-State	:29⅗	:55⅕	1:24⅘
5	Ford	:31	:55⅕	1:26⅕
15	Marion	:29⅘	:57⅖	1:27⅕
41	Henry	:27⅖	1:01⅖	1:28⅘
3	Cartercar	:32	1:00⅘	1:32⅘
2	Oakland	:35⅘	1:00	1:35⅘
10	Staver	:31	1:06⅗	1:37⅖
4	Cartercar	:35⅘	1:05	1:40⅘
1	Brush	1:17	1:46	3:03

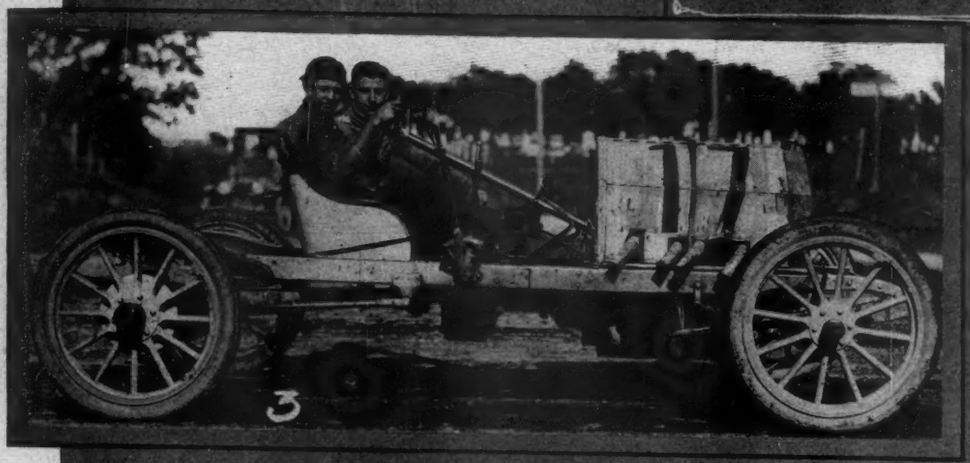
RELATIVE STANDING, AFTERNOON TIME

Average Time, :49.14

No.	Car and driver	Time
36	National, Greiner	:39⅘
38	National, Greiner	:39⅘
22	Falcar, Gelnaw	:40
47	Falcar, Gelnaw	:40⅕
55	National, Greiner	:41
50	National, Greiner	:41
40	National, Greiner	:41
31	Velie, Stickney	:41⅖
51	Velie, Cooney	:41⅖
54	Stoddard-Dayton, Englebeck	:41⅘
46	Moon, Caillonette	:41⅘
59	Benz, Hearne	:42
39	Benz, Hearne	:42
32	Velie, Cooney	:42
52	Velie, Stickney	:42⅘
26	Moon, Caillonette	:43⅕
49	Falcar, Hughes	:43⅘
56	Ford, Rice	:44
48	Falcar, Pearce	:44⅗
53	Midland, Ireland	:44⅘
21	Parry, Dull	:45
23	Falcar, Pearce	:45⅕
34	Kisselkar, Branstetter	:45⅖
17	National, Seek	:46
12	Jackson, Hearne	:46
18	Velie, Stickney	:46⅕
43	Marion, Monsen	:46⅕
25	Pullman, Jackson	:46⅖
20	Staver-Chicago, Monckmeier	:46⅘
37	Jackson, Hearne	:46⅘
45	Kisselkar, Schoeneck	:48
57	Ford, Gruener	:48
29	Falcar, Hughes	:48⅗
24	Kisselkar, Schoeneck	:49
44	McIntyre, Turgeon	:49⅕
11	Velie, Cooney	:49⅖
27	Marion, Monsen	:50
33	Midland, Ireland	:50⅗
30	Imperial, Killip	:50⅗
7	Parry, Dull	:50⅘
58	Lexington, Mattoon	:52
28	McIntyre, Turgeon	:52⅕
35	Lexington, Mattoon	:52⅘
6	Ford, Rice	:53⅘
16	Kisselkar, Branstetter	:54
14	Inter-State, Seek	:55⅕
5	Ford, Gruener	:55⅕
15	Marion, Monsen	:57⅖
8	Moline, Salisbury	:57⅘
2	Oakland, Harding	1:00
3	Cartercar, Pendelton	1:00⅘
41	Henry, Moritz	1:01⅖
4	Cartercar, Hammerly	1:05
10	Staver-Chicago, Monckmeier	1:06⅖
1	Brush, Lincoln	1:46

RESULTS OF EVENTS CONTESTED ON TIME BASIS IN ALGONQUIN CLIMB

No.	Car	Driver	Entrant	Bore	Stroke	Piston Displacement	Weight of Car	A. M. Time	A. M. M. P. H.	A. M. Position	P. M. Time	P. M. M. P. H.	P. M. Position	Total Time
EVENT NO. 1, CLASS A, DIVISION 1 A, $800 AND UNDER, FULLY EQUIPPED CARS														
1	Brush	Lincoln	Brush Runabout Co.	4	5	62.75	1210	1:17	8.9	1	1:46	18.8	1	3:03
EVENT NO. 1, CLASS A, DIVISION 2 A, $801 TO $1,200, FULLY EQUIPPED CARS														
6	Ford	Rice	Ford Motor Co.	3¾	4	176.7	....	:27⅘	24.9	1	:53⅘	33.6	1	1:21⅗
5	Ford	Gruener	Ford Motor Co.	3¾	4	176.7	....	:31	22.3	2	:55⅕	32.6	2	1:26⅕
3	Cartercar	Pendelton	Cartercar Co.	4	4	201.1	2015	:32	21.6	3	1:00⅘	29.6	4	1:32⅘
2	Oakland	Harding	Oakland Motor Car Co.	4	4	201.1	2015	:35⅘	19.3	4	1:00	30.	3	1:35⅘
4	Cartercar	Hammerly	Cartercar Co.	4	4	201.1	2030	:35⅘	19.3	4	1:05	27.6	5	1:40⅘
EVENT NO. 1, CLASS A, DIVISION 3 A, $1,201 TO $1,600, FULLY EQUIPPED CARS														
7	Parry	Dull	Manhattan Motor Car Co.	4¼	4½	265.3	2140	:24⅘	27.9	1	:50⅘	35.4	1	1:15⅗
8	Moline	Salisbury	Moline Automobile Co.	4	6	301.6	2645	:26	26.6	2	:57⅘	31.1	2	1:23⅘
10	Staver	Monckmeier	Staver Carriage Co.	4	4	201.1	2640	:31	22.3	3	1:06⅖	27.1	3	1:37⅖
EVENT NO. 1, CLASS A, DIVISION 4 A, $1,601 TO $2,000, FULLY EQUIPPED CARS														
12	Jackson	Hearne	Ralph Temple	4⅞	4¾	354.6	2647	:24	28.8	2	:46	39.1	1	1:10
11	Velie	Cooney	Velie Motor Vehicle Co.	4½	5¼	334	2800	:23⅖	29.5	1	:49⅖	36.4	2	1:12⅘
16	Kisselkar	Branstetter	H. P. Branstetter	4⅞	4¾	354.6	3135	:28⅗	24.2	3	:54	33.3	3	1:23⅗
14	Inter-State	Seek	National Auto Co.	4½	5	318.1	2670	:29⅕	23.3	4	:55⅕	32.6	4	1:24⅘
15	Marion	Monsen	Marion Motor Car Co.	4½	4½	255.3	2590	:29⅘	23.1	5	:57⅖	31.3	5	1:27⅕
EVENT NO. 1, CLASS A, DIVISION 5 A, $2,001 TO $3,000, FULLY EQUIPPED CARS														
17	National	Seek	J. H. Seek	5	5 11-16	447	3145	:19	36.4	1	:46	39.1	1	1:05
EVENT NO. 2, CLASS B, DIVISION 2 B, 161 TO 230 CUBIC INCHES, STRIPPED CHASSIS														
18	Velie	Stickney	Velie Motor Vehicle Co	4	4	201.1	1720	:23⅕	29.8	2	:46⅕	38.9	1	1:09⅖
20	Staver	Monckmeier	Staver Carriage Co.	4	4	201.1	1875	:22⅘	30.3	1	:46⅘	38.4	2	1:09⅗
EVENT NO 2, CLASS B, DIVISION 3 B, 231 TO 300 CUBIC INCHES, STRIPPED CHASSIS														
22	Falcar	Gelnaw	Fal Motor Co.	4⅛	5¼	280.6	2030	:19⅗	35.3	2	:40	45.	1	:59⅗
26	Moon	Caillonette	Moon Motor Car Co.	4 19-32	4½	300.4	2120	:19⅕	36.	1	:43⅛	41.6	2	1:02⅘
21	Parry	Dull	Manhattan Motor Car Co.	4¼	4½	255.3	1890	:21	32.9	3	:45	40.	3	1:06
23	Falcar	Pearce	Fal Motor Co.	4⅛	5¼	280.6	2020	:21	32.9	3	:45⅕	39.8	4	1:06⅕
29	Falcar	Hughes	Fal Motor Co.	4⅛	5¼	280.6	1965	:21⅘	31.7	6	:48⅗	37.	6	1:10⅖
25	Pullman	Jackson	Pullman Motor Car Co.	4 1-32	5	257	1940	:21⅕	32.6	5	:46⅖	38.7	5	1:07⅗
24	Kisselkar	Schoeneck	H. P. Branstetter	4¼	4¼	241.1	1995	:22⅖	30.9	7	:49	36.7	7	1:11⅖
27	Marion	Monsen	Marion Motor Car Co.	4¼	4½	255.3	1990	:23⅖	29.5	9	:50	36.	8	1:13⅖
28	McIntyre	McIntyre	W. H. McIntyre Co.	4⅛	5¼	280.6	2100	:22⅘	30.3	8	:52⅘	34.	10	1:15⅗
30	Imperial	Killip	Imperial Motor Car Co.	4¼	4½	255.3	2160	:28	24.7	10	:50.3	35.5	9	1:18⅗
EVENT NO. 2, CLASS B, DIVISION 4 B, 301 TO 450 CUBIC INCHES, STRIPPED CHASSIS														
36	National	Greiner	National Auto Co.	5	5 11-16	447	2570	:17⅘	38.8	1	:39⅘	45.2	1	:57⅗
32	Velie	Cooney	Velie Motor Vehicle Co.	4½	5¼	334	2180	:19⅗	35.3	2	:42	42.8	3	1:01⅗
31	Velie	Stickney	Velie Motor Vehicle Co.	4½	5¼	334	2190	:20⅗	33.5	3	:41⅖	43.4	2	1:02
34	Kisselkar	Branstetter	H. P. Branstetter	4⅞	4¾	354.6	2455	:21	32.9	5	:45⅖	39.6	4	1:06⅖
37	Jackson	Hearne	Ralph Temple	4⅞	5¾	429.3	2515	:24	28.8	6	:46⅘	38.4	5	1:10⅘
33	Midland	Ireland	Midland Motor Co.	4½	5	318	2290	:20⅘	33.2	4	:50⅗	35.5	6	1:11⅖
35	Lexington	Mattoon	Lexington Motor Co.	4½	5	318	2190	:25	27.7	7	:52⅘	34	7	1:17⅘
EVENT NO. 2, CLASS B, DIVISION 5 B, 451 TO 600 CUBIC INCHES, STRIPPED CHASSIS														
38	National	Greiner	National Auto Co.	5	5 11-16	447	2570	:18⅖	37.6	1	:39⅘	45.2	1	:58⅗
39	Benz	Hearne	E. A. Hearne	4⅞	5⅞	438.8	3370	:19	36.4	2	:42	42.8	2	1:01
EVENT NO. 2, CLASS B, DIVISION 6 B, 601 TO 750 CUBIC INCHES, STRIPPED CHASSIS														
40	National	Greiner	National Auto Co.	5	5 11-16	447	2570	:19⅗	35.3	1	:41	43.9	1	1:00⅗
EVENT NO. 3, DIVISION 3 B, 300 CUBIC INCHES AND UNDER, STRIPPED CHASSIS														
46	Moon	Caillonette	Moon Motor Car Co.	4 19-32	4½	300.4	2120	:19⅘	34.9	1	:41⅘	43.6	2	1:01⅗
47	Falcar	Gelnaw	Fal Motor Co.	4⅛	5¼	280.6	2030	:22	31.4	4	:40⅕	44.7	1	1:02⅕
49	Falcar	Hughes	Fal Motor Co.	4⅛	5¼	280.6	1965	:20	34.6	2	:43⅘	41.3	3	1:03⅘
48	Falcar	Pearce	Fal Motor Co.	4⅛	5¼	280.6	2020	:20⅖	33.9	3	:44⅗	40.3	4	1:05
43	Marion	Monsen	Marion Motor Car Co.	4¼	4½	255.3	1990	:23⅘	29.0	7	:46⅕	38.8	5	1:10
45	Kisselkar	Schoeneck	H. P. Branstetter	4¼	4¼	241.1	1995	:22⅖	30.9	5	:48	37.5	6	1:10⅖
44	McIntyre	Turgeon	W. H. McIntyre Co.	4⅛	5¼	280.6	2100	:23⅗	29.3	6	:49⅕	36.5	7	1:12⅘
41	Henry	Moritz	Henry Motor Car Co.	4⅛	5¼	280.6	....	:27⅖	25.2	8	1:01⅖	29.3	9	1:28⅘
42	Pullman	Jackson	Pullman Motor Car Co.	4 1-32	5	....	....	Stalled	....	.	:50⅕	35.8	8	....
EVENT NO. 3, CLASS B, DIVISION 5 B, 600 CUBIC INCHES AND UNDER, STRIPPED CHASSIS														
50	National	Greiner	National Auto Co.	5	5 11-16	447	2570	:18⅘	36.8	1	:41	43.9	1	:59⅘
EVENT NO. 4, FREE FOR ALL, STRIPPED CHASSIS														
55	National	Greiner	National Auto Co.	5	5 11-16	447	2570	:18⅕	38.0	2	:41	43.9	1	:59⅕
59	Benz	Hearne	E. A. Hearne	4⅞	5⅞	438.8	3370	:17⅖	39.7	1	:42	42.8	4	:59⅖
51	Velie	Cooney	Velie Motor Vehicle Co.	4½	5¼	334	2180	:19⅖	35.6	4	:41⅖	43.4	2	1:00⅘
54	Stod-D'yt'n	Englebeck	McDuffee Auto Co.	5	5½	412.3	....	:20	34.6	5	:41⅘	43.0	3	1:01⅘
52	Velie	Stickney	Velie Motor Vehicle Co.	4½	5¼	334	2190	:19⅕	36.0	3	:42⅘	42.0	5	1:02
53	Midland	Ireland	Midland Motor Co.	4½	5	318	2290	:21	32.9	6	:44⅕	40.1	7	1:05⅕
56	Ford	Rice	Ford Motor Co.	3¾	4	176.7	....	:24	28.8	8	:44	40.9	6	1:08
57	Ford	Gruener	Ford Motor Co.	3¾	4	176.7	....	:21	32.9	6	:48	37.4	8	1:09
58	Lexington	Mattoon	Lexington Motor Co.	4½	5	318	2190	:27	25.6	9	:52	34.6	9	1:19

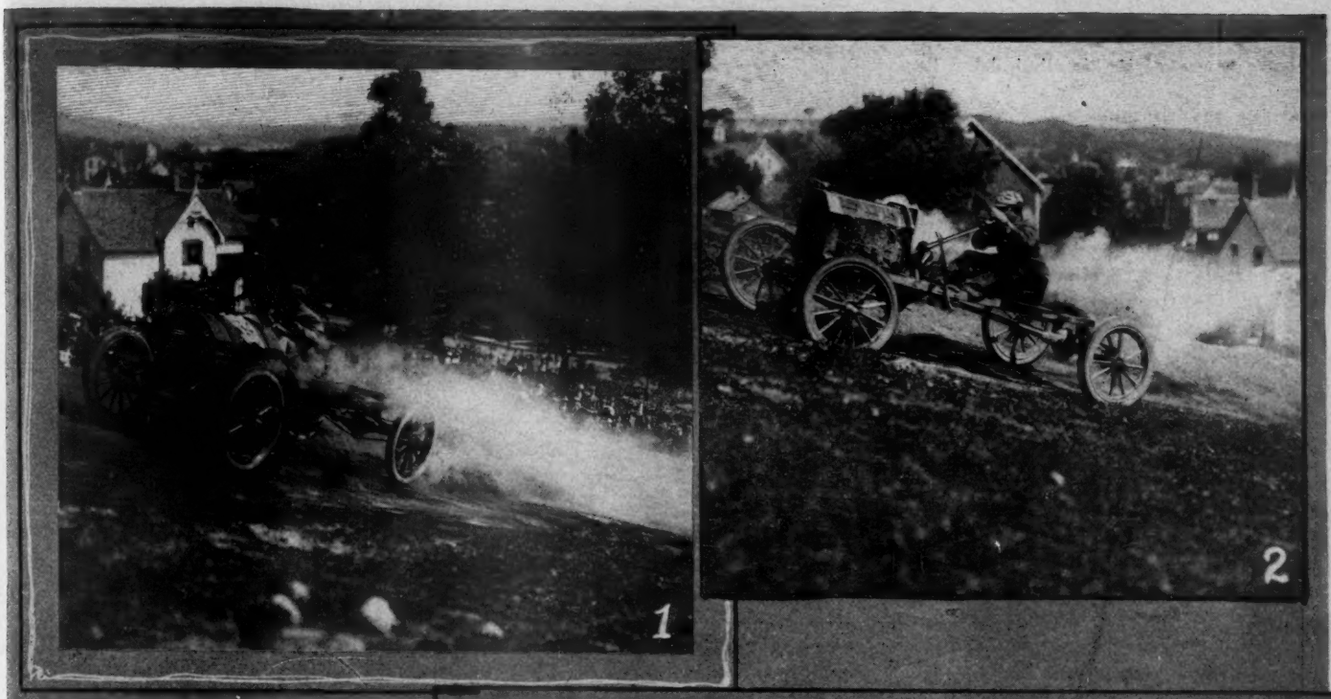


1—Algonquin Hill from Starting Line to First Turn

2—First Turn on Algonquin Hill Showing Grade

3—Staver, Best Showing under the Formula

4—Steep Part of New Hill, Falcar Coming Up

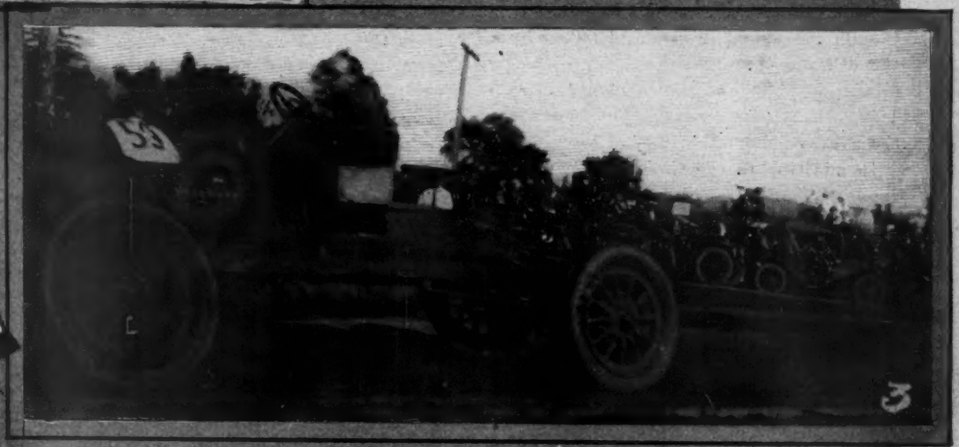


1—Branstetter in Kisselkar

2—Rice in Ford, in Free-for-All

3—Hearne in German Benz Fastest in Morning Climb

4—Stickney in Velie on New Hill at Curve



tive time standing on the two grades. The Velie performed with the same consistency as marked its hill-climb debut last year. The little Velie with a 4 by 4 motor won the 161-230 class from the Staver with the same sized motor, while in the 301-450 class Cooney and Stickney in the larger Velies, the ones with the 4½ by 5¼ motors ran second and third to the National driven by Greiner, beating the Kisselkar, Jackson, Midland and Lexington. In the free-for-all Cooney in the Velie ran third to the National and Benz and outfooted the big 5 by 5½ Stoddard-Dayton driven by Englebeck. The other Velie driven by Stickney ran fifth in the free-for-all and beat the Midland, two Fords and the Lexington.

The work of the Ford in the climb was considered a remarkable demonstration of the hill-climbing abilities of these little fellows. There were two entered in the $801 to $1,200 class which ran only on time and not under the formula. In this the Fords won, beating two Cartercars and an Oakland. In the free-for-all there were two stripped Fords which did fine work although outclassed in size and power by all the others. The Rice Ford made the two climbs in 1:08 and the Gruener Ford in 1:09, which was considerably faster than the average time of 1:12.96.

In addition to the time events, the Chicago Motor Club retained the formula contests which have been featured in all of the hill-climbs at Algonquin. This formula consists of mutliplying the cylinder capacity by the time in seconds and dividing the result by the weight of the car and driver. This is supposed to thoroughly demonstrate engine efficiency, and under it, it is possible for a slower car to beat out a faster one by the use of this formula. This was used in event No. 1 in which a price classification prevailed, and in which the contesting cars participated in a double-header, so to speak, the one climb sufficing to rate the cars under both systems.

Twelve cars contested under the formula, the Fords refusing to be figured in this section. In the $800 and under class, the sturdy little Brush which ran through the Munsey tour as a photographer's car, had a walkover. In the $801 to $1,200 class the No. 3 Cartercar defeated an Oakland, and No. 4 Cartercar, although under the time basis the two Fords made the best time. In the $1,201-$1,600 class the Staver beat the Parry which won on time, while a Moline was ranked third whereas under time it was second. In the $1,601-$2,000 class the formula gave first place to the Marion which was last on a time basis. The National driven by Seek had a walkover in the $2,001 to $3,000 class, under the formula.

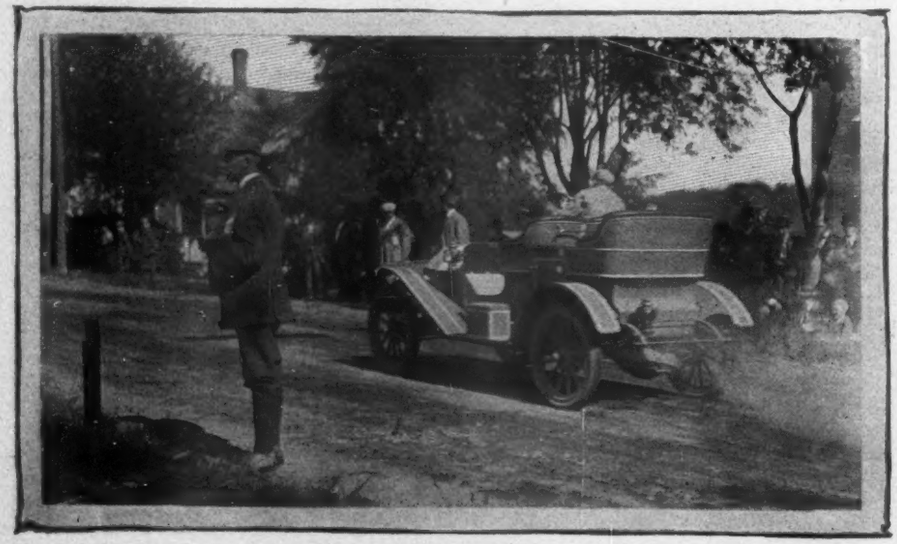
General View of New Algonquin Hill

FORMULA RESULTS

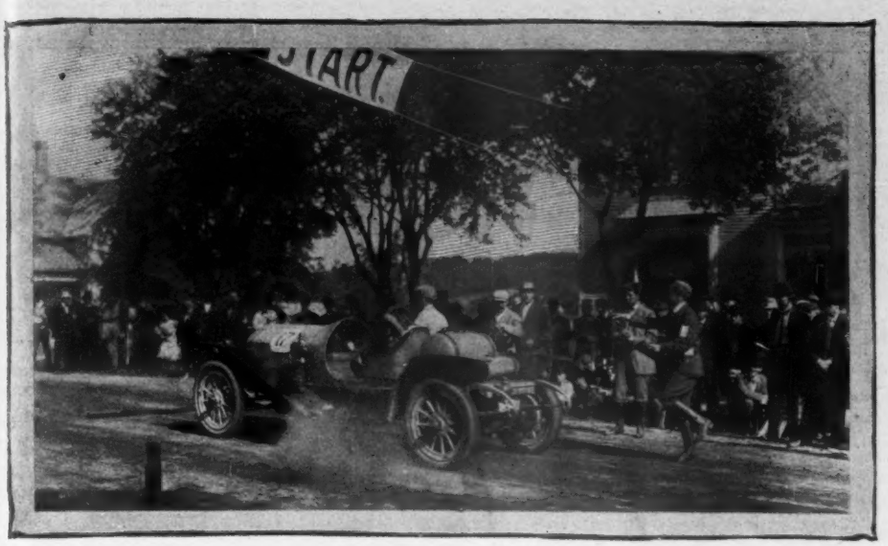
No.	Car	A.M. Pct.	P.M. Pct.	Total Pct.
	800 and Under			
1	Brush	3.88	4.93	8.51
	$801 to $1200			
3	Cartercar	2.99	5.60	8.59
2	Oakland	3.33	5.58	8.91
4	Cartercar	3.31	6.02	9.33
	EVENT NO. 1, $1201 to $1600			
10	Staver	2.36	5.05	7.41
7	Parry	2.75	5.54	8.39
8	Moline	2.80	6.23	9.03
	$1601 to $2000			
15	Marion	2.73	5.27	8.00
11	Velie	2.64	5.58	8.22
12	Jackson	3.04	5.83	8.87
16	Kisselkar	3.06	5.79	8.85
14	InterState	3.35	6.24	9.59
	$2001 to $3000.			
17	National	2.50	6.2	7.78

Under this formula the car with the lowest percentage won in its class. Summing up the entire handicap field one discovers that the Staver ranks best in the engine efficiency table with a percentage of 7.41. Second is No. 15 Marion with 8.00. Then come No. 11 Velie, 8.22; No. 7 Parry, 8.39; No. 1 Brush, 8.51; No. 3 Cartercar, 8.59; No. 17 National, 8.78; No. 16 Kisselkar, 8.85; No. 12 Jackson, 8.87; No. 2 Oakland, 8.91; No. 8 Moline, 9.03; No. 4 Cartercar, 9.33; and No. 14 Inter-State, 9.59.

Comparing this year's fixture with the contests of 1909, the climb does not suffer much. Nearly as large a field ran this time as did a year ago. In 1909 there were eighty-five cars entered in twenty-two events, seventy-one started and sixty-six climbed both hills. This year of the fifty-nine cars entered, fifty-six started and all but one climbed both grades. There were twenty-three makes of cars represented this time against twenty-six last year and a comparison of entry lists shows that not many of last year's contestants faced the starter this time, for of the twenty-six makes that were represented in 1909 only seven of them were in the contest yesterday. While none of the very big cars like the Chadwick, Thomas, Stearns and Apperson that have competed in previous years made the run this time, still the spectators were very well satisfied with the speed shown by the National, Benz and Falcar. The record of :17⅘ made by Hearne on the new Algonquin hill is the equivalent to 39.7 miles per hour, while Greiner's :39⅕, made twice on Phillips hill, means 45.2 miles per hour. Greiner's total time that won the Algonquin cup represents an average speed of 42 miles an hour. Figuring out the average time of the fifty-five



Cartercar That Won $801-$1,200 Formula Class



SEEK IN THE NATIONAL IN THE $2,001-$3,000 CLASS

cars that climbed Algonquin hill, shows an average speed for the field of :24.23 while the same field averaged :49.14 on Phillips, while the average speed for the two climbs combined is 1:12.96.

Anticipating trouble from cars stalling on the hill, the club officials guarded against this by stationing four men with logs on the road side where the steep part of the hill started. These men were supposed to stop cars that were stalled, but they had little chance to demonstrate their efficiency. In practice logs were used on a couple of the cars, one of which could not make the steep grade because of a cylinder missing. In the actual contest itself, only one car stalled, a Pullman. Jackson, the driver, discovered by the time he hit the hill that he had lost his distributor box cover and various useful parts were dropped by the wayside. Because of this he only got half way up when he was logged. This put him out of the running.

The new Algonquin hill has been safeguarded in other ways also. The club has erected wire fencing on both sides of the road leading up; it has banked the first turn, it has oiled the roads and at the present time it has a hill-climbing plant of which any club might be proud. No longer is it unnecessary to hold the cars at the top until the end of the climb, for running down is another zigzag road by which each car returns to the starting line after making its effort. Because of this convenience the club ran off its morning card in which fifty-six cars participated in exactly one hour, whereas on the other hill where there is no returning road it took twice that time for the same number of cars to make the climb.

Owing to the difference in gear ratios, wheel sizes, etc., it is interesting to note how and when the starts and gear changes of the winning cars respectively were made. The Brush car No. 1, lone competitor in the first event, started on low, shifted to high as quickly as convenient, and staid in high gear almost half way up the hill, then shifted back into low and completed the ascension. The No. 6 Ford car, winner of division 2, started on low gear and after running about 10 feet slipped into high and climbed about three-quarters way up the hill before changing back to low. A No. 7 Parry, which made the best time in division 3A, started on first speed, shifted to second, then to third at intervals of about 20 feet, and climbed the entire hill on the high gear.

In division 4A the Jackson No. 12, which had the best average time for the two hills in the class, started on the first speed, shifted to second at about 25 feet from the start, then made the ascension without further change. The Velie, which made the fastest time in this event on the steep hill in the morning, started on the first speed, shifted into second, and also made the ascension on second speed. This practice also was followed by the No. 17 National.

In event No. 2, division 2B, No. 20 Staver made the fastest time by starting on first, shifting to second at the 25-foot line, and making the ascension on this gear. The Velie No. 18, which made the fastest average time for both hills in this class, went from first to second and third at intervals of about 20 feet, and made the ascension on high gear, its time for the steep hill being ⅖ second slower than that of the Staver. Although the Falcar No. 22 made the fastest average time on both hills in division 3B, its time for the steep hill was ⅖ second slower than that of the Moon No. 26, both cars changing from first to second and third speeds at 20-foot intervals and dropping back to second about three-quarters way up.

The star performer in divisions, 4, 5 and 6B was the National, which started on first and made the climb on second. The Moon, which was a shining light in event 3, division 3B, got into third speed as quickly as possible at the start, but came down to second about three-quarters way up the hill. The National No. 50 won in division 5B on second speed, and in the free-for-all event, No. 4 as No. 55 made the best average time for both hills, but was ⅘ second slower than a No. 59 Benz, which started on first, then made the ascension on second. The following table shows gear ratios and wheel sizes.

No.	Car	Gear Ratio on Direct Drive	Wheel Size
1	Brush	3 11-13 to 1	28
2	Oakland	3½ to 1	32
3	Cartercar	3 5-12 to 1	32
4	Cartercar	3 5-12 to 1	32
5	Ford	3 4-11 to 1	30
6	Ford	3 4-11 to 1	30
7	Parry	3½ to 1	32
8	Moline	3½ to 1	36
10	Staver	3½ to 1	34
11	Velie	3½ to 1	34
12	Jackson	3 to 1	34
14	Inter-State	3½ to 1	34
15	Marion	3⅝ to 1	34
16	Kisselkar	3½ to 1	36
17	National	2 11-17 to 1	34
18	Velie	4 to 1	32
20	Staver	3½ to 1	34
21	Parry	3 to 1	32
22	Falcar	3 to 1	34
23	Falcar	3½ to 1	34
24	Kisselkar	4 to 1	34
25	Pullman		34
26	Moon	3 8-15 to 1	34
27	Marion	2 8-10 to 1	32
28	McIntyre	3 to 1	36
29	Falcar	3 to 1	34
30	Imperial	4 to 1	32
31	Velie	3½ to 1	34
32	Velie	3½ to 1	34
33	Midland	3 to 1	34
34	Kisselkar	3½ to 1	36
35	Lexington	3½ to 1	34
36	National	2½ to 1	34
37	Jackson	3 to 1	34
39	Benz	2½ to 1	36
41	Henry	3½ to 1	34
54	Stoddard-Dayton	3 5-17 to 1	36

HEARNE IN JACKSON THAT WON IN ITS CLASS

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Weight Elements In Cars

UUDER the 1910 contest rules of the American Automobile Association, a stripped chassis is classified according to piston displacement, there being all told six classes with a minimum weight limit for each class, and a proviso attached that "no car shall compete in any class above that which the weight entitles it." Motor Age cannot see why weight should be a determining factor when a classification according to piston displacement is used. Under the rules as they have been enforced this year several cars have been barred from competition because they have not come up to the minimum weight requirements of the rules. It appears absurdly paradoxical that if the classification of a car is determined by piston displacement that it must also be determined by weight. You cannot classify in stock events by two standards without making exceptions in one or the other. Stock cars are stock cars and if they come within a certain classification according to piston displacement they should not be debarred from that class because of a weight clause. The rules as framed at present make it imperative that only stock cars compete in class B events, and why should a legitimate stock car be barred from such an event simply because it weighs less than the minimum requirement which the Manufacturers Contest Association has seen fit to set. The matter is wrong and is working an injustice to four or five manufacturers at the present time. According to the present rules a manufacturer must make his car of a certain weight or he cannot compete in stock events. This is absurd.

THE weight clause in cars is a relic of the days when the Vanderbilt was young and when weight was the only requirement. In those days a car had to weigh under 2,204 pounds, but then there was no limitation on the cylinder sizes, or on the stock requirement. Today, an entirely new era has been entered upon, namely, that of defining the stock car. It has been agreed that the proper classification of stock cars is by piston displacement, which is correct, but instead of making this the sole criterion for classification the weight factor has been dragged along as a heritage from earlier days. It is entirely out of place today. Nevertheless it is with us, and should be dropped at the earliest moment. If a manufacturer building cars in the 231-300 class, which at present has a minimum weight requirements of 1,700 pounds, can construct a car weighing 1,400 pounds and yet be of sufficient weight and strength to withstand the usage of owners all over the country and to warrant the manufacturer continuing it year after year, then that car should be encouraged as compared with a car that has a minimum weight of 1,800 or 1,900 pounds. At present there is a handicap on the light-weight car, notwithstanding the fact that these light-weight cars are used by the thousands, and are as legitimate stock car products as are being built.

IT is to be hoped that in 1911 the contest board will draw a sharper line in the matter of granting sanctions on mile tracks and in which non-stock cars are allowed. As it is today a manufacturer enters a stock car at Holley Center track meet and sets a mark of :58; the next day another manufacturer with a non-stock car sets a mark of :56 and gets the ears of the public by holding the record. He advertises it and it is not imperative that his advertising copy should designate stock or non-stock events. For next year it should be imperative that every manufacturer or dealer should incorporate the words "Stock" or "Non-Stock" in every advertisement, booklet, or other publicity medium.

Algonquin Hill-Climb

ONCE more has the middle west set the pace for sporting contest in America by the Algonquin hill-climb, which was the first one in America to be contested on a privately-owned hill built specially for the purpose. The citizens of Algonquin, Ill., have this year, at the request of the Chicago Motor Club, built a hill after the fashion of the Brooklands hill in England for the purpose of hill-climbing. This hill with grades ranging from 1 to 26 per cent has been designed specially to test the hill-climbing abilities of different cars. The hill measures 1,000 feet in length and has two curves which add immeasurably to the merit of the climb. Up to the present little permanent attention has been given to hill-climbs, the selection of a hill generally depending on the most accessible location. In providing a specially constructed hill the motor club has promoted an example which it will be for other clubs to imitate throughout the country. Building a hill of this nature is not a big expense. If the soil is of a gravel and clay composition the outlay is not excessive and the difficulty of providing a suitable surface comparatively small. The great value obtained is the advantage of a private right of way. It is possible to fence such a right of way off, leaving broad safety strips on either side so that the danger element is practically eliminated. Although the new Algonquin hill is approximately 50 miles from Chicago it is expected that use will be made of it for demonstrating purposes.

ALTHOUGH a year ago but few concerns exhibited torpedo types of bodies the promises are that there will scarcely be a concern which will not have its fore-door design for 1911. Although not originally listed in their 1910 lines, the facts are that many of the manufacturers have built a goodly number of torpedo types during the present year, and, as might be expected, many lessons have been learned from the experiences gained. Continuous touring in the torpedo type of body during the warm season has proven that some form or other of ventilation around the dash is essential. One manufacturer has attempted to solve this problem by providing a lock which leaves the door partly open. This has given the necessary current of air, but it has also brought in a terrific cloud of dust. Other manufacturers have put a series of openings in the dash, which can be regulated by shutters. This has proven satisfactory where the openings have been large enough, but in some cars there is not sufficient dash room for this work. What the outcome of this ventilation in the torpedo type will be remains to be seen, but it is a certainty that something must be done. The advantages of the torpedo design, from a standpoint of cleanliness are sufficiently great to offset the increased temperature during the summer season, and in the winter the advantages are all with the torpedo type. One manufacturer has hit upon a novel scheme of forming detachable fore-doors so that for hot weather the fore-doors with their framework can be removed without disturbing the general appearance of the car. With this construction the only advantage of the torpedo comes in cold weather, and so the factor of cleanliness, which is closely associated with it, does not become a potent influence in the touring season. Some marked developments in the matter of ventilation are looked for during the coming autumn and winter. It is also anticipated that the problem of properly locating the change speed and emergency brake levers will be satisfactorily settled, so that these parts will not be so much in the way when located inside of the body and not appear so entirely foreign to the car when located outside of the body, as they do at the present time.

AVERAGE PRICE OF CARS FIGURED BY A. L. A. M.

NEW YORK, Sept. 16—One of the most interesting tabulations in connection with the industry, has just been made public by the Association of Licensed Automobile Manufacturers. It is a careful compilation of figures recorded with the A. L. A. M. for each year since 1903 and gives the average price of cars for each year since that time. The chart shows an increase in the price of motor cars from 1903 until 1907, but since that time the average price has gradually declined. This is not the result of any radical reduction in the price of motor cars, but is brought about by the great increase in the manufacture and sale of machines selling at $1,500 or less. In the early days, a car at less than $2,00 0was rare, whereas now the greatest volume of business and the greatest number of machines are under that figure.

The sales recorded by makers licensed under the Selden patent are for American gasoline cars only. By comparison, however, the sales of steam and electric vehicles are small. The figures show that the trend in manufacturing has been to each year give more for the same list price, than to make any great cut in the selling figure. There has been a tremendous increase in the making of what are termed the moderate-priced cars and a normal and healthy increase in the number of the higher-priced machines produced.

Seldenites Find Retail List Has Jumped From $1,133.37 in 1903 to $1,545.93 in 1910

From $1,133.37, as the average price for cars in 1903, the average ran up to $2,137.56 in 1907, since which time it has decreased until the first 6 months of 1910 shows $1,545.93 as the average retail list price of cars. The following comparative table indicates the average price for each year for the sale of gasoline motor cars licensed under the Selden patent, including the first 6 months of 1910:

Year	Average price	Year	Average price
1903	$1,133.37	1907	$2,137.56
1904	1,351.45	1908	1,926.94
1905	1,609.79	1909	1,719.93
1906	1,853.93	1910	1,545.93

OUT ON GOOD ROADS WORK

St. Louis, Mo., Sept. 19—To lay out a route and agitate a movement for a highway between St. Louis and Arcadia, Mo., a distance of nearly 50 miles, the St. Louis Times' pathfinder for the state immigration commission left the Times building at noon today. C. E. Goldthwaite drove the car, which is an Overland. With him were State Immigration Commissioner Curran and J. E. Foland, official pathfinder for the immigration commission and a representative of the St. Louis Times. The car will be on the road for more than a week, as a number of good roads meetings will be held in the larger towns along the route, which will be attended by farmers, merchants and municipal and county officials.

After leaving St. Louis the car followed the Lemay ferry road through Maxville, Antonia, Hillsboro, De Soto, Melzo, Bonne Terre, Desloge, Flat River, Farmington, Doe Run, Turpin, Iron Mountain, Middle Brook, Graniteville, Pilot Knob, Ironton, and then to Arcadia. Good roads meetings were arranged for De Soto, Bonne Terre, Flat River and Ironton. In addition to the benefits derived by the farmers along the route of the proposed highway, St. Louis motorists are greatly interested in the project because of the scenic attractions. This part of Missouri has some of the most picturesque spots in the United States. J. E. Foland has been authorized next to lay out a state highway from St. Louis to Kansas City. In addition to the fact that the immigration commission is employing him for this work, he has assurances of hearty support from Governor Hadley and of a large proportion of the motorists of the state.

Coming Motor Events

September 22-23—Racing at Lake county fair, Madison, S. D.

September 24—Syracuse Herald sociability run, Syracuse, N. Y.

September 30-October 3—Third annual reliability of Automobile Club of Minneapolis.

September 30-October 1—Motor car day at State Fair, Springfield, Ill.

October 1—Vanderbilt cup race.

October 4, 5 and 6—Open air show and speed carnival, Kansas City, Mo.

October 6-7—Fall interclub reliability team match between the Chicago Automobile Club and the Chicago Athletic Association.

October 7-8—Speedway meet at Los Angeles, Cal.

October 6-7-8—Track meet at Santa Anna, Cal.

October 8—Fairmount Park road race, Philadelphia, Pa.

October 10-12—Two-day track meet on 2½-mile dirt speedway, Amarillo, Texas.

October 15-November 2—Show in Paris promoted by Aeronautical Society.

October 17—Nine-day good roads tour of the Atlanta Constitution.

October 23—Road race, Portola cup, San Francisco, Cal.

October 27-28-29—Track meet at Dallas, Tex.

November 3, 4 and 5—Race meet of Atlanta Automobile Association, Atlanta speedway.

November 5-6—Track meet at New Orleans, La.

November 10-12-13—Track meet at San Antonio, Tex.

November 7-10—Five-day reliability run of Chicago Motor Club, 200 miles a day.

November 24—Hill-climb at Redlands, Cal.

November 24—Santa Monica road race, Los Angeles, Cal.

November 24—Meet on mile board speedway at Los Angeles, Cal.

December 1-8—First annual aeronautical exhibition, Chicago Coliseum.

December 3-18—Annual salon of Automobile Club of France.

January 7-14 and 17-24, 1911—Show of A. L. A. M., Madison Square garden, New York.

January 15-21—Annual Detroit show.

January 28-February 4—Annual Chicago show of N. A. A. M., pleasure cars.

February 6-11—Annual Chicago show of N. A. A. M., commercial cars.

March 4-11—Annual Boston show.

March 15-18—Show of Louisville Automobile Dealers' Association, Louisville, Ky.

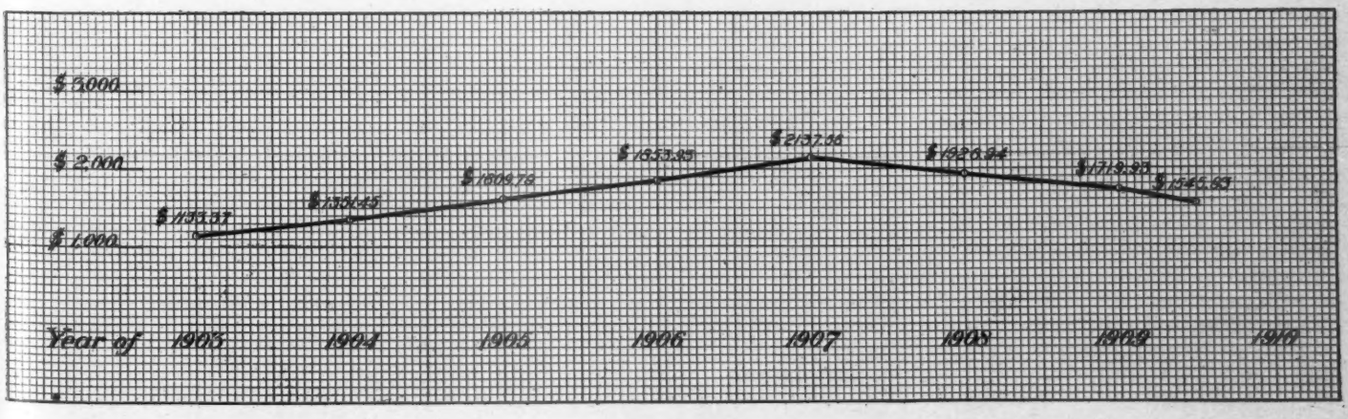


CHART PREPARED BY A. L. A. M. SHOWING FLUCTUATION IN RETAIL PRICE LIST OF LICENSED CARS SINCE 1903

SPANISH CAR WINS BIG FRENCH ROAD RACE

PARIS, Sept. 18—Special cablegram—Cars of Spanish manufacture triumphed over the French product today in the voiturette cup road race held at Boulogne-sur-Mer, for the Hispano-Suiza, driven by Zuccarrelli, won the 282.5 mile event in 5 hours 4 minutes 50 seconds, an average of 55.5 miles per hour. Second was Goux, in a Peugeot, in 5 hours 21 minutes and 50 seconds. Third was another Spanish car, Chassaigne's Hispano, which ran in 5 hours 30 minutes 45 seconds. Boilott, in a Lion-Peugeot, was fourth in 5 hours 36 minutes 36 seconds. Of the fourteen cars that started seven finished. This is the second international road race that the Hispano has won this month, it being a matter of record that this same Zuccarrelli captured the annual voiturette race at Ostend. The Hispano greatly resembles the Lion-Peugeot, in that its four cylinders are made in a single casting, the bore being 2.5 inches and the stroke 7.9 inches.

In practice yesterday Guippone, one of the greatest race drivers in France, was killed. Giuppone won the Boulogne race last year, as well as the Ostend and the Catalagna cup at Barcelona, Spain.

Spain Wins Belgian Race

Brussels, Sept. 6—For the first time in more than 2 years Lion-Peugeot voiturette racers were defeated in an important road race on Sunday. The event was the annual voiturette race of Ostend, run over a distance of a little less than 250 miles, over a 20.8 miles circuit. The winner was Zuccarelli, a Spanish driver, who was at the helm of a four-cylinder Hispano-Suiza, having 2.5 inches bore and 7.9 inches stroke. The winner's time was 4 hours 44 minutes 41 1-5 seconds, averaging 52.8 miles an hour. Boillot, in a single-cylinder Lion-Peugeot, was second, 2 minutes 11 seconds behind the leader, while Pilleverdier, in a Hispano-Suiza, similar to that of the winner, was third, way behind. The third Spanish car, driven by Chassaigne, and the other two Lion-Peugeot cars, other in 20:13, and still another one in finish.

This year's race was less interesting than the 1909 contest, as only six cars started as against eleven last year. That the Spanish car won on its merits cannot be said. In fact one lap before the finish it was hopelessly beaten, barring accidents. At that time Boillot, in the Peugeot, was leading by 21 minutes 8 seconds, but fate went against him during the last lap, and when victory seemed certain, something went wrong with the motor, and it required nearly 30 minutes before the car could again be started. Boillot's twelfth lap was covered in 47:27, while Zuccarelli's time for the lap was only 24:08. No doubt the Lion car of Boillot's was much faster than that of the Spanish driver, for while the latter's fastest round was made in 21:07, Boillot made one lap in 19:30, another in 20:13, and still another one in 20:25. Giuppone, last year's winner, was out of the race after the first lap when a spring gave way upon one of the badly paved stretches within the city limits. Goux had to stop during the third lap and after some adjustments to the motor the two-cylinder Lion went very well until shortly after the tenth lap, when it had to be withdrawn.

The bad weather and the strong wind greatly interfered with the drivers. It was a hardship on the men. Last year the winning Peugeot, with Giuppone on the wheel, covered the same course in 4 hours 33 minutes 28 seconds, or more than 13 minutes faster.

In connection with the voiturette event there also was run the annual race for the de Liedekerke, Williame and Ostende trophies. Hardly any attention was paid to the three contestants for these prizes. M. Coosemans, driving a four-cylinder Excelsior, 3.7 by 5.1, won the three trophies. He covered the 250 miles in 6 hours 10 minutes 22 seconds. Last year the winner was Christians in a Vivinius and his time only was 4 hours 54 minutes 38 seconds.

The circuit, upon which the race was run, was of such a kind that it is a wonder any one even entered the races. For several miles the route was cobble stones, badly laid at that with the steam car tracks on one side. Outside of the city the country roads were in bad condition.

ATLANTA GETS ENTRIES

Atlanta, Ga., Sept. 19—Entries are beginning to flow in for the fall meet of the Atlanta Automobile Association. The first entry made was a local E-M-F, the first car of that make shipped south and a machine that has been driven over 50,000 miles. A local Parry was second and a Pope-Hartford third. Then outside entries began to flow in. The first lot contained three free-for-all cars, de Palma's Fiat, Hearne's Benz and the new Cole 90. A Wescott was entered in the Atlanta grand prize event and two 1910 Coles and one of the 1911 model were entered for everything in which they were eligible to compete.

FAIRMOUNT CLASS C RACE

Philadelphia, Pa., Sept. 20—A change has been made in the classification scheme of the Fairmount park road race, set for October 8, and by the decision to run the event under class C the fixture becomes a free-for-all, similar to the Vanderbilt, except that larger cars are eligible for the competition. This decision also gives to the Chicago Motor Club the honor of running the only stock car road race of the year and clinches Ralph Mulford's title. While deserting class B, the Quaker City Motor Club retains the piston displacement limitations of class B, but eliminates the minimum weight restrictions. There will be four divisions—231-300, 301-450, 451-600 and 601-750—with a $1,000 first prize in each division. As a unit the field will contest for a grand prize of $2,500 which goes to the car making the fastest time regardless of class. Entries for the race close October 5 and the fee charged is $500. At the present writing there are but seven entries in, which include Grant in the Alco, Zengel and Mitchell in Chadwicks, Robertson and Hearne in Benzs, Hanshue in the Apperson, and Schiefler in a Jackson.

LOUISVILLE STARTS RUN

Louisville, Ky., Sept. 17—The second annual reliability and economy contest of the Louisville Automobile Club begins next Tuesday morning and ends Thursday evening. The small entry list is due to the fact that many of the local dealers have not yet received their 1911 models. The run will be through the fairest section of the Bluegrass state and the contest is to be governed by the rules of the American Automobile Association. Although three cups were offered as prizes, the competition will be for the reliability and economy cups. No cars are entered in the owners' division and the club will be saved the expense of purchasing a trophy. The prizes hung up must be won three times to become the permanent property of the winner. A Cole and a Cadillac will struggle for first honors in the economy division. Ira S. Barnett, who won the economy cup last year, has again entered a Cadillac. The cup in this class is offered to the entrant whose car shows the greatest economy in gasoline, water and oil per horsepower mile, according to the A. L. A. M. rating; gasoline to count 80 per cent and water 5 per cent. The cars, entrants and drivers in the reliability division follow:

No.	Car	Entrant
2	Cadillac	Ira S. Barnett
3	Oldsmobile	Olds Motor Works
4	Oldsmobile	Olds Motor Works
5	Hudson	A. L. McCormick
6	Regal	Atlas Machine Co.
8	Cadillac	Ira S. Barnett

ECONOMY DIVISION

1	Cadillac	Ira S. Barnett
8	Cole	A. L. Martin

OFFICIAL CARS

Car	Entrant	Use
Cole 30,	A. L. Martin	Press
Packard,	Lee Miles	Pacemaker
Oldsmobile,	Olds Motor Works	Confetti

The 1910 tour will be over 433 miles of roadway, ranging in quality from fair to excellent. Harrodsburg has been selected as the first night control, with the Lincoln farm as the noon stop. The first day's run of 142 miles will be via Shepherdsville, Hodgenville, Bardstown and Springfield. The second day's run of 149 miles passes through Danville, Standford, Crab Orchard, Richmond, Mt. Sterling, and ends at Winchester. It is required that the cars cover 142 miles on the last day of the run, which ends at Louisville. The route to the metropolis will include several of the largest cities in the state.

PRACTICE STARTS FOR VANDERBILT CUP RACE

NEW YORK, Sept. 21—Preliminary practice for the Vanderbilt cup race commenced yesterday morning at dawn over the cup course on Long Island. Prior to the formal practice the Lozier aspirant was run over the route a few times by Ralph Mulford, but nothing like high speed was attempted, as the county roads were not closed at that time. At the present time there are twenty-two entries for the Vanderbilt, five for the Wheatley and seven for the Massapequa. The list is as follows, with each car's practice number.

VANDERBILT CUP

No. Car	Driver
1—Benz	George Robertson
2—Benz	Edward A. Hearne
3—Benz	David Bruce-Brown
4—Alco	Harry F. Grant
5—Pope-Hartford	Jack Fleming
6—Pope-Hartford	Bert Dingley
7—National	John Aitken
8—National	Al Livingstone
9—Simplex	Leland Mitchell
10—Simplex	Ralph E. Beardsley
11—Lozier	Ralph Mulford
12—Marquette-Buick	Louis Chevrolet
14—Marquette-Buick	Robert Burman
15—Marquette-Buick	Arthur Chevrolet
16—Apperson	Harris Hanshue
17—Marmon	Joe Dawson
18—Marmon	Ray Harroun
19—Jackson	E. F. Scheifler
20—Corbin	Joe Matson
21—Amplex	Walter Jones
22—National	L. A. Disbrow
23—Stoddard-Dayton	T. De Hymel

WHEATLEY HILLS

31—Marion	Marcel Basle
32—Marmon	Not named
33—Corbin	A. Maisonville
34—S. P. O.	J. Juhasz
35—Correja	Not named

MASSAPEQUA

41—Cole	Bill Endicott
43—Cole	Louis Edmunds
44—Lancia	William Knipper
45—Mercer	E. H. Sherwood
46—Abbott-Detroit	Not named
47—Abbott-Detroit	Not named
48—Abbott-Detroit	Not named

When practice started this morning the first car out was the two-cycle Amplex, which swung around the 12.64-mile circuit. It seemed as if it must have done remarkably fast time, but the watches only showed 11:52 for the circuit. That rate of speed, however, would have proved sufficient to have won in other Vanderbilt cups if maintained from start to finish. The next aspirant for speed honors was the Simplex, driven by Mitchell. A broken spring-clip prevented anything sensational in the way of a trial, as the driver eased the car along and made the circuit in 12:18, according to announcement. There was heavy fog over the Vanderbilt course this morning at daybreak and for a short time it looked as if practice would have to be postponed, but about 6:30 o'clock the fog lifted and in a short time one of the Pope-Hartfords came down to the line with Bert Dingley at the wheel. The racy looking white car flashed by the timers and was gone in a jiffy. Proceeding over the full course, it finished the lap in 11:21, which is the fastest time made in practice so far this year. Despite the fact that the Amplex entry has been timed miles on the straight ways in much faster time, the latter car has not made the full circuit at such great speed. The Mitchell Simplex made a round in 1:41 and the other Pope Hartford was out for an airing. The Marion entered in the Wheatley Hills was given a spin by Basle at moderate speed.

The Benz trio, the two Simplexes, the pair of Marmons, the Apperson, two Corbins and the Lozier are on the ground and ready to commence practice.

The course is patrolled from 5 a. m. to 8 a. m. by a squad of flagmen stationed at every crossing and every doubtful spot on the route. The guards are equipped with a red flag and a white flag. The white means danger to the speeding contestant and the red means danger to the public and safety to the driver.

The course is practically in racing shape. The oil treatment of the county roads this year consisted of 1,500 gallons to the mile and will not be repeated before the race. One good rain is needed to put the roads in ideal condition and the weather appearances favor at least that much precipitation.

The start of the Vanderbilt cup has been advertised for 5 o'clock sharp, but by October 1 it will be stone-black at that hour and it is likely that the first car will not be sent away until about 6 o'clock. The Vanderbilt entries will be dispatched at 10-second intervals and 1 hour after the last of the cars is sent on its long dash the first of the Wheatley Hill's entries will commence its race. After the contestants in that event have started there will be another lull for 30 minutes and then the contestants for the Massapequa will be called to the post. The idea is to hold the interest and attention of the crowd until the finish of the race and to provide a powerful motive for keeping the course clear until practically all the cars in the three events have passed the line.

If the plans work out as intended it is not unlikely that the winning cars in the three contests will finish in the same lap. This of course contemplates fast time by the Vanderbilt winner, but external appearances seem to favor some exceedingly rapid work in that class. The scheme is the one that first was tried at Elgin.

The telautograph will be used in disseminating information from the stand to the scoreboards, there being one transmitting instrument and seven receievers in process of installation at present. The process of scoring will be augmented by the use of this instrument. The timers will hand the scores to the operator, who will send them direct to the board markers. On either side of the press stand giant frames are being built to hold the boards and the system of marking that will be used allows the operator to place the lap figures in appropriate squares behind the board and without obstructing the view from the grandstand to display the figures on the face of the board. The Warner timing instruments will be installed by Friday morning, when it is expected that all the contesting cars will be in camp. It is expected that many of the entrants will not devote so much time to training work as has been customary in previous years, owing to the majority of the drivers already being familiar with the course.

CARNIVAL FOR KANSAS CITY

Kansas City, Mo., Sept. 17—Of course, all races and entertainments where admission is charged are benefits in one way or other. But the speed and air carnival that is to be staged by the Kansas City Automobile Dealers' Association at the local Elm Ridge track October 4, 5 and 6 is genuinely to be a benefit—a car show benefit, as every dollar taken in at the date will go towards defraying the cost of the 1911 exposition. The date is within Kansas City's annual week of festivities, the Priests of Pallas week, and there is no doubt whatever that the 3-day show will be a real benefit. The feature of the program, outside of the aeroplane and Overland wind wagon exhibitions, is to be an hour and a half race, 30 minutes to be run off each day for $1,000 cash prize. There are three novelty stunts for the 3 days, too. A 5-mile chase on the first day will consist of a circuit of the track, stopping within given lines, unloading passengers, stopping motor, cranking up, reloading and closing doors, and then resuming the run. A postmen's motor race is scheduled for the second day, the plans calling for mail boxes at ¼ mile posts around the track. Each driver will have to deposit a certain quantity of mail in each box on the first round, removing it on the second trip without dropping any of the letters. On the third day will be a slow race on high gear, the winner to be the last man to reach the finish line without using his clutch or killing his engine. In this stunt each car will carry an observer. The 1911 show date has not been set as yet, although the association has practically reserved its usual week at Convention hall, beginning the last Monday in February.

The other dealers' association, the Motor Car Trade Association, probably will co-operate in the February show. Beginning September 26 the Motor Car Trade Association is to give a midsummer show as a part of the Missouri valley fair and exposition at Electric park.

BUYS A BUICK BRANCH

Kansas City, Mo., Sept. 21—Special Telegram—The Buick branch has been purchased by the district manager, R. H. Collins, and will be in the future known as the R. H. Collins Motor Co.

DE PALMA REGAINS MILE MARK AT SYRACUSE

SYRACUSE, N. Y., Sept. 17—Another exciting chapter was added to the de Palma-Oldfield duel here to-day, when, before a monster throng, Ralph de Palma, in his Fiat 90, twice lowered the 1-mile record on a circular track, held by Barney Oldfield, and then established a new record for 5 miles at 4:11.90.

It was 2 years ago that de Palma established a mark for the mile at the Minnesota state fair of :50⅘ that was destined to last for some time. At the Minneapolis meeting, early this month, Kerscher, in the Darracq, zipped a mile in :50.29. In a few minutes de Palma had reduced it to :49.35. And, right afterward, upon that day, along came Oldfield and in the Benz cut the record to :49.29.

On the state fair track to-day, in two sensational flights, de Palma twice reduced the record, the first time to :49.13 and next to :48.92. For good measure he clipped the 5-mile record upon a circular track of 4:24.1, held by Oldfield, to 4:11.9.

The occasion was signalized by the presence of Colonel Roosevelt as spectator and honorary referee. The former president came up from New York to-day to visit the fair, deliver an address and watch the motor races. The program had not gone very far when it was interrupted to await the entree of the colonel. The immense crowd, lined all about the mile track for its entire distance, applauded as Roosevelt was driven completely around it at a walk, while he bowed and smiled. Then he made his address. It was 50 minutes long. During the last 20 minutes the colonel could not be heard, as the crowd was whistling, yelling and stamping for the races and de Palma.

De Palma was a rather lonely star of the meeting, for George Robertson, who would have proved a worthy opponent, had hard luck. Robertson came here with the Simplex, but this morning broke a crankshaft. The damage could not be repaired in time for the races, so Robertson borrowed a factory Knox and did the best he could.

The course was in splendid shape for the tests, and it is a matter of satisfaction to the Automobile Club of Syracuse, to whose efforts was due the state fair commission's favorable action in ending fair week with motor races, 3 years ago, that to-day's attendance of 80,000 far transcends that of any single day in the history of the state fair.

De Palma's time trials came on right after the Roosevelt address, and the Fiat pilot had difficulty in starting because he required a clear track and part of the ex-president's military escort had started to walk around the track. He got the word after a couple of circuits and then fairly shot around the course, making the mile in :49.13. Colonel Roosevelt led the mighty cheer which followed. In a little while ing forth on the mile after a single circuit of the course. He made it in :48.92 and received a memorable ovation.

He came out for his 5-mile trial a full-fledged hero with the crowd. Those holding the watches knew early in the game that, unless some unforseen accident occurred, another record was his. He tore off the first mile in :49 flat. Two miles was completed in 1:40.55; three in 2:30.55; four in 33:20.27, and 5 in 4:11.90.

Robertson had been an entrant in the 5-mile record trial event, but the accident to his Simplex debarred him from it as well as from the 1-mile trials. For the latter there were several others entered, as well, including M. Lee Brock in the Knox, Richard Gleason and W. King Smith in Nationals, also Louis Disbrow in one of those cars, and several others. But none started other than de Palma. The 10-mile free-for-all handicap, for all types and motive powers, was an exciting and hotly waged race and was won by Frank Kulick in a Ford in 11:19.73. W. King Smith, in a National, was second, and John Juhasz, in an S. P. O., was third. The honorary referees of the meet were Colonel Theodore Roosevelt and Lieutenant-Governor Horace White, while the referee was A. R. Pardington. Fred J. Wagner was starter. Summaries:

FIVE MILES, UNDER 300 CUBIC INCHES

Car and driver	Time
S. P. O., John Juhasz	5:28:92
Mercer, E. H. Sherwood	Second
Maxwell, Ellery Wright	Third

Other entrants: Walter Emmons, W. R. Smith and William Murray, Herreshoffs; E. B. Abbott, Moyer; Bill and Harry Endicott, Cole 30.

TEN MILES, 301 TO 450 CUBIC INCHES

National, W. King Smith	10:10:76
National, Louis Disbrow	Second
Velie, Roy Robbins	Third

National, Richard Gleason, also entered

FIVE MILES, FREE-FOR-ALL

Fiat, Ralph de Palma	4:24:15
Ford, Frank Kulick	Second
Knox, M. Lee Brock	Third

Other entrants, George Robertson in Knox; Richard Gleason, W. King Smith, Louis Disbrow in Nationals.

FIVE MILES SPECIAL FOR CARS DRIVEN BY RESIDENTS OF SYRACUSE

National, Charles Rollins	12:49:60
Simplex, Roy Hawkins	Second
National Richard Gleason	Third

Other entrants, M. Lee Brock in Knox; W. King Smith in National; Roy Robbins in Velie.

MILE TIME TRIALS

Fiat, Ralph De Palma	:49:13
Fiat, De Palma, second trial	:48:92

Other entrants, M. Lee Brock in Knox; George Robertson in Simplex; Gleason, Smith and Disbrow in Nationals; James Barclay in Rochet-Schneider, Frank Kulick in Ford.

TEN MILES, FREE-FOR-ALL HANDICAP

Ford, Frank Kulick	11:19:73
National, W. King Smith	Second
S. P. O., John Juhasz	Third

Other entrants, E. H. Sherwood in Mercer; Walter Emmons, W. R. Smith and William Murray in Herreshoffs; M. Lee Brock in Knox; Richard Gleason and Louis Disbrow in Nationals; Ellery Wright in Maxwell; E. B. Abbott in Moyer, Roy Robbins in Velie, James Barclay in Rochet-Schneider, Frank Kulick and Rockselman in Fords; Bill and Harry Endicott in Cole 30's.

TEN MILES, FREE-FOR-ALL

Fiat, Ralph De Palma	8:50:71
Ford, Frank Kulick	Second
National, W. King Smith	Third

Other entrants, M. Lee Brock in Knox, George Robertson in Simplex; Richard Gleason and Louis Disbrow in Nationals, Roy Robbins in Velie, James Barclay in Rochet-Schneider.

FIVE-MILE TIME TRIALS

Fiat, Ralph De Palma	4:11:90

Time by miles: 49 seconds, 1:40:55, 2:30:55, 3:20:27, 4:11:90.

TEN MILES, UNDER 450 CUBIC INCHES

National, Louis Disbrow	9:57:26
S. P. O., John Juhasz	Second
Mercer, E. H. Sherwood	Third

Other entrants, Richard Gleason in National; W. King Smith in National; Roy Robbins in Velie; Bill Endicott in Cole.

OLDFIELD AT TOLEDO

Toledo, O., Sept. 17—This was a record-smashing day at the Lucas county fair grounds. A notion of the enthusiasm may be obtained from the fact that it was necessary to call off the last two minor racing events on the program because of inability to check the surging mass of people following the main events of the day. The last day following the fair proper was given over to motoring, and was distinctly a

DE PALMA IN THE FIAT AFTER HIS RECORD MILE AT SYRACUSE

Toledo day, the populace turning out to make it such. A number of preliminary contests opened the program, including several motor cycle races. A novel event followed, being a race between the Overland wind wagon, driven by Carl Hallhofer, and Jake Meinzinger with a 30-horsepower E-M-F, the latter covering the 3 miles in 4:15 and winning easily. Then came Ben Kerscher's dash for the 2-mile mark. He negotiated the distance in 2:20 flat. A handicap was next on the program, Barney Oldfield conceding Jake Meinzinger in his E-M-F a 20-second start. The lead proved too strong, Meinzinger winning the event by a few lengths in 2:21. The feature which had called forth the enormous crowd was the effort of Barney Oldfield for the mile mark. The performance was a remarkable one, the car being pushed to its capacity and shooting under the wire in 1:00⅘. The crowds, which had been held in check by the mounted police, rushed onto the track and further racing became an impossibility.

CROWD AT COLUMBIA, S. C., GREETS RODDEY, WINNER OF 100-MILE RACE

OAKLAND TRAVELS FAST

Seattle, Wash., Sept. 17—All state and coast records for small cars were smashed at North Yakima during the past week in a 3-day race meet held there by the Speed King Racing Association, an organization of dealers of Seattle. The association is composed of the Arthur Bunker Motor Car Co, the Staeley-Bleakley Motor Car Co., Racine Boat and Auto Co., and Harris & Stevens. The Oakland 30, driven by Bleakley, easily took everything in its class and made several new state and coast records for cars in the $1,000 class. In a mile against time this car hung up a record of 1:06 flat. In a 5-mile race the time was 6:02, and in the 25-mile race the Oakland's time was 28:22. The 5-mile race for local amateurs was won by the Overland, with McNutt driving. The time was 7:00⅖. A match race between a Speedwell, driven by Chidester, and a Stearns, driven by Stevens, was won by the Stearns in 6:02. A novelty race was put on between an Oakland and one of the fastest Yakima mares, the mare being given a ½ mile start, the Oakland car winning by 10 feet in a mile run. In the 25-mile race for the Speed King trophy Bleakley won the race, running the last 10 miles on the fabric of one of his front tires, winning in 26:22.

RACING AT COLUMBIA

Columbia, S. C., Sept. 17—A 2-day race meet opened here yesterday. A Buick driven by J. B. Roddey won the 100-mile race for the Blanchard-Ehrlich trophy. A Ford came second. The Maxwell No. 1, driven by McFadden, made but three laps, when the breaking of the flywheel put it out. There was no trouble until the ninety-fourth lap, when the Pullman loosened a bolt in its steering apparatus and ignition trouble forced it to retire. The Chalmers had magneto trouble during the run, but managed to finish. On the ninety-fourth mile the Ford stopped to adjust a broken wire connection, losing the lead to the Buick, which kept up its good work until the last, winning out by two minutes. The Buick's time was 1:58:05 and the Ford's 2:00:20.

A Ford driven by Lawson won two of the three events today. The 1-mile and 50-mile went to the Ford, while the 5-mile was won by a Pullman. In the 50-mile race there were only three cars left to take part. The Ford won in 55:53, making the fastest mile in 1:06. The standing track record is 1:05 and was made last year by a White steamer. Summaries:

One mile—Ford, time 1:09; Warren-Detroit, time 1:09⅘; Pullman, time 1:10; Chalmers, time 1:10⅖.
Five miles—Pullman, time 5:51⅘; Chalmers, time 5:56⅕; Ford, time 5:56⅖.
Fifty miles—Ford, time 55:53; Chalmers-Detroit, Pullman.

RALPH DE PALMA RECEIVING CONGRATULATIONS OF HIS FRIENDS

NEW YORK COMMERCIAL TEST

New York, Sept. 21—Under the management of the New York American a commercial vehicle reliability test will be held in the metropolis October 28 and 29. The course of the run will be over various streets of New York and aside from mechanical ability to maintain a fixed schedule of speed the test will include economy of operation. Up to date four entries have been made, as follows: Morgan 5-ton truck, Gaggenau 7-ton truck, Garford 2-ton truck and Renault 2-ton truck.

WORCESTER CLUBHOUSE BURNED

Worcester, Mass., Sept. 22—Special telegram—Fire at an early hour this morning completely destroyed the home of the Worcester Automobile Club, a magnificent building which was valued at $65,000 and which was one of the finest motoring edifices in the country outside of New York and Chicago. The club's officers now are searching for new quarters.

Durant Out as Buick Leader

DETROIT, Mich., Sept. 19—It was definitely announced today that the Buick Motor Co. has negotiated a loan of $2,500,000 in Boston to provide working capital for the coming year's operation. W. C. Durant is out as general manager and in his place is Charles W. Nash, of Flint, who is figuring on turning out 18,000 cars for 1911. Mr. Nash assumed charge of the company plant today as general manager, with full control of all departments. Mr. Durant found it necessary to relinquish this position in order to devote more attention to the affairs of the General Motors Co. The place, it is learned, was tendered Mr. Nash 6 months ago, but as he had made his plans for an extended trip to Europe, his acceptance was deferred until the present time. Mr. Nash has been for a number of years general superintendent of the associated factories of the Durant-Dort Carriage Co., of Flint, of which he is also the vice-president. He is a director in the Flint Varnish Works. The company, according to statements given out, is now turning out cars at the rate of sixty-five per day, and there are nearly 2,400 men on the pay roll.

No definite information is available as yet as to the negotiations between the directors of the General Motors Co. and local financial interests. Detroit bankers brand as absurd many of the stories that are floating around.

Hudson Stock Increased

The most interesting event of the past week in local motor car circles was the announcement that the Hudson Motor Car Co. has increased its capital stock from $100,000 to $1,000,000, the increase representing a stock dividend. Of the new stock, $100,000 will remain in the treasury; the remainder will be distributed among the stockholders pro rata. This showing is all the more remarkable from the fact that the company is less than 2 years old. Last season it shipped 4,200 cars, and has contracted to deliver more than 10,000 cars the coming season. The company's new plant out Jefferson avenue is rapidly nearing completion.

Never in the history of the Michigan state fair has the gasoline motor had such a representation or played so conspicuous a part as this year. The opening of the 1910 fair this morning also marked the opening of the new motor car building. The industry is well represented in the state fair show. The 1911 models of practically every car made or handled in Detroit are on view or will be when the fair gets nicely under way. There is an unusual number of special cars, and the exhibit of farm vehicles is far more complete than in previous years. Following is a list of the exhibitors:

Security Auto Co., Olds Motor Works, Lion Motor Sales Co., Maxwell-Briscoe-McLeod Co., Ford Motor Co., Anderson Carriage Co., Cadillac Motor Car Co., Detroit Motor Sales Co., Herreshoff Motor Car Co., Brush-Detroit Motor Car Co., Elmore Auto Co., Cartercar Co., J. P. Schneider, Overland Sales Co., Van Dyke Auto Co., Cass Motor Truck Co., Port Huron; Keeler-Hupp Motor Co., Montgomery Motor Sales Co., Winton Motor Carriage Co., Grabowsky Power Wagon Co., Rapid Motor Vehicle Co., Buick Motor Co., Regal Motor Car Co., C. B. Fear, J. H. Brady Auto Co., W. A. Paterson Carriage Co., Flint Mich.; Standard Oil Co., Atlantic Refining Co., Cleveland; Auto Supply and Mfg. Co., Searchlight Gas Co., Pittsburg; Auto Equipment Co., Eastern Rock Island Plow Co., Indianapolis; Flint Wagon Co., Gillespie Auto Sales Co., Jackson Motor Co., Jackson, Mich.; Michigan Magneto, Portland Cement, Emil Grossman Co., New York; Manson-Campbell Co., Wayne Oil Tank & Pump Co., Seitz Auto and Transmission Co. and the Craig Auto Co.

Saturday's Attraction

Saturday has been set apart as motor car day at the fair, and a great racing card has been arranged by the Wolverine Automobile Club, which will have full charge of this feature of the big show, at the request of the fair management. The principal event will be a 3-mile match between Barney Oldfield and Ralph de Palma for a $500 purse. Oldfield will attempt to establish a new mark for 3 miles, and both he and De Palma will go after the 1-mile mark. Frank H. Trego will act as referee at the races.

Evidences of increasing activity in the factories are seen in the liner columns of the local papers. The E-M-F company is advertising for body-fitters. The Cass Motor Truck Co., of Port Huron, wants a number of experienced assemblers on chassis and transmission work, and the Hayes-Ionia Co., Ionia, Mich., is looking for body-makers. Last week the E-M-F company advertised for 100 axle assemblers and 250 men applied before the following noon.

The Oliver Motor Car Co. has just moved into new quarters on Lawton avenue, near the Michigan Central railroad, having purchased the property from the National Cutlery Co. for $50,000. The company employs 150 men and expects to turn out between 300 and 500 commercial cars the coming year. Just now it is confining its attention to the Oliver delivery wagon, with a capacity of 1,200 pounds, but other models will be added in the near future. The company is capitalized at $300,000.

Autoette Company Starts

The Horton Autoette Mfg. Co. filed articles of association with the secretary of state last week and will probably establish a plant in Detroit. Several sites already are under consideration. The Autoette is a two-wheeled vehicle with two smaller wheels which may be raised or lowered at will. It was designed by Allen H. Horton, who gives his name to the company. The capital stock is $100,000 and the officers are: President, A. J. Potter; vice-president, Allen H. Horton; treasurer, J. J. Chapin; secretary, H. B. Schantz.

The new garage at 463-465 Woodward avenue was formally opened this morning. It is occupied jointly by the Craig Auto Co., distributer for Abbott-Detroit cars; Thomas C. Harris, Michigan distributer for Krit cars, and the Montgomery Motor Sales Co., agent for the American. A beautifully decorated display room occupies the front of the establishment. There are offices on the second floor.

Directors of the newly-organized Dearborn State Bank have elected Henry Ford, of the Ford Motor Co., president. The institution has a capital of $25,000.

President Porter, of the Wolverine Automobile Club, has announced his committee chairman for the ensuing year, as follows: Contest, E. T. George; technical, F. H. Trego; publicity, Charles A. Hughes; runs and tours, C. F. Gilmore; membership, C. K. Brauns; house, L. H. Collins; signboard, H. C. Mills; legislative and ordinance, W. G. Bryant.

RIDER-LEWIS AFFAIRS

Anderson, Ind., Sept. 15—A meeting of the creditors of the Rider-Lewis Motor Car Co. was held today at which a report of the assets and liabilities of the company was presented. A creditors' committee of seven was appointed, of which D. A. Harris, secretary of the Driggs-Seaburg Ordnance Corporation, Sharon, Pa., was made chairman. It was recommended that the affairs of the company be looked into and a report of the company be made in detail. This company went into the hands of a receiver September 10. The receiver is A. R. Burkdoll, who is present treasurer of the company. The factory will continue the production of cars. At today's meeting it was stated the assets of the company in the shape of factory site and buildings, machinery, tools, patterns, dies, parts and raw materials for the making of motor cars, and bills and accounts receivable amounted to $171,330.19. The company says the liabilities amount to $192,948.97.

The filing of the original receivership petition by Mr. Burkdoll was the result of an all-afternoon conference of stockholders and creditors. The company's condition was thoroughly canvassed and it was the unanimous opinion of all present that this action should be taken. The feeling exists that the receivership can be wound up in the course of 2 or 3 months and the company be put on a more substantial basis by means of a reorganization. In the meantime the plant will be operated the same as in the past and the regular line of cars will be built.

A. L. A. M. AFTER IMPORTERS

New York, Sept. 19—Another series of suits for injunctions, damages and profits for infringement of the Selden patent has been filed against importers in and about New York city and against the Fiat Automobile Co., of Poughkeepsie, a manufacturer of American cars. Service has been made on sixteen companies in the southern district of New York and one in the district of New Jersey, by Betts, Sheffield, Bentley and Betts, answers to which must be made on October 3. The statement is made that other suits will follow. Among

the companies that have already been served, with the cars they handle, are the following: S. P. O. Automobile Co., S. P O.; Itala Import Co., Itala; Albert C. Otto, Saurer truck; Fiat Automobile Co., Fiat; C. G. V. Import Co., C. G. V.; Delahaye Import Co., Delahaye; Zust Motor Co., Zust; Benz Auto Import Co., Benz; Hotchkiss Import Co., Hotchkiss; Daimler Import Co., Mercedes; Henry Ducasse & Co., Darracq; Renault-Freres Selling Branch, Renault; Saurer Motor Trucks, Saurer trucks; Albert C. Travis, Mercedes; Healey & Co., Mercedes; Fiat Co., of Poughkeepsie, American Fiat; A. T. Demarest & Co., English Daimler; J. M. Quinby & Co., Newark, N. J., Isotta.

WANT BANKRUPTCY DECLARED

Indianapolis, Ind., Sept. 18—A petition has been filed in the United States circuit court at Indianapolis asking that the Anderson Carriage Mfg. Co., of Anderson, Ind., which has been in the hands of a receiver for some time, be adjudged bankrupt. The petition is signed by the Cincinnati and Hammond Springs Co., the National Hardware Co. and Michael C. Weiglein, all of Cincinnati, who allege claims aggregating $3,149.86. The Anderson concern made an unsuccessful venture in manufacturing motor buggies when the high-wheelers were at the zenith of their fame a couple of seasons back.

STRIKE IN MITCHELL PLANT

Racine, Wis., Sept. 21—The strike of fifty machinists employed by the Mitchell-Lewis Motor Co. last week developed into serious labor trouble on Monday of this week, when 550 machinists and grinders quit the plant and made a demonstration on the city streets. The first walk-out was caused by an alleged reduction in wages through the proposed adoption of a new wage scale, and a desire to have an inspector discharged. The company claims that there is no wage reduction, but certain machinery was changed and the wage scale was changed to meet these conditions. On Saturday the trouble apparently had been adjusted. However, on Monday, new trouble arose and when, it is alleged, an official of the company refused to give an audience to a committee, practically all machinists and grinders walked out. There was no disorder. A statement was issued on Monday evening by J. W. Bate, general factory manager, who said in part:

"There is no reasonable cause for this walk-out, as we are paying a better average than is paid by any other motor car company in the United States, and our men have been employed practically the year round. We have not cut the daily wage scale, and only made changes where the parts have been changed and methods improved. A great number of the men who have gone out are under 23 years of age, and are not machinists, and yet the wage scale paid by us is higher than in any other factory in this city."

Recent Happenings in Trade World

MILWAUKEE, Wis., Sept. 19—Frank J. Edwards, manager of the Kisselkar company, Milwaukee, Wis., was chosen chairman of the committee on permanent organization of the new Wisconsin Retail Motor Car Dealers' Association, which effected a temporary organization in Milwaukee last week. The other members of this committee are: L. F. Schoelkopf, Madison; S. C. Foster, Beloit; E. J. Foster, Waukesha; George Rall, Galesville; A. Swiebel, Jr., Burlington; C. P. Barker, Chippewa Falls; George W. Davis, Grand Rapids; P. B. Haber, Fond du Lac; Otto E. Scherer, Palmyra; Arthur Gardiner, Kenosha; C. H. Holway, LaCrosse; Frank Gordon, Darlington; O. R. Hughes, Marshfield; J. C. Crain, Oshkosh; Thomas H. Jacobs, Wausau; W. H. St. John, Green Bay, and A. R. Hall, Manitowoc. Rudolf Hokanson of Madison is temporary chairman and M. C. Moore, of Milwaukee, secretary pro tem. It is expected that more than 400 dealers will be induced to join the association by the time of the permanent organization meeting, the date for which has not yet been decided upon.

OUT OF UNITED MANUFACTURERS

Meriden, Conn., Sept. 15—The United Manufacturers has lost two of its allied concerns, according to the following announcement made today: "As it appears to be for the best interests of all concerned, the sales arrangements now existing among the United Manufacturers and the Connecticut Telephone and Electric Co. and the Connecticut Shock Absorber Co. will be discontinued on October 1. We therefore wish to advise you that on and after that date inquiries should be addressed direct to the Connecticut Telephone and Electric Co. and the Connecticut Shock Absorber Co., at Meriden, unless such information refers to settlement of accounts for purchases up to October 1, in which case such inquiries should be addressed to the United Manufacturers at New York." This is signed by the United Manufacturers, Connecticut Telephone and Electric Co. and the Connecticut Shock Absorber Co.

HEARS VELIE CASE ARGUMENTS

Milwaukee, Wis., Sept. 19—The supreme court of Wisconsin heard arguments late last week on a motion of the defendants in the $500,000 conspiracy suit brought by the Velie Motor Vehicle Co. for a writ of prohibition to prevent Judge W. J. Turner of the circuit court for Milwaukee county from assuming jurisdiction in the matter. The case was taken under advisement. Judge Turner recently dismissed the cases against twenty of the defendants by stipulation, holding four, of which number one was subsequently released. The remaining defendants are: Pope Mfg. Co., Chalmers Motor Co., and the Locomobile Co. of America. These defendants ask for a writ of prohibition, claiming that as service was made upon the Wisconsin sales representatives of these concerns, the foreign concerns have not received legal service of the complaint. The twenty-fifth defendant, the Kopmeier Motor Car Co., of Milwaukee, a retail selling agency, is not concerned in the demand for the writ of prohibition. The Kopmeier company's demurrer was recently upheld, halting proceedings temporarily.

Judge A. L. Sanborn, of the United States district court, sitting in the eastern district of Wisconsin in place of Judge J. V. Quarles, has denied the motion of the Garage Equipment Mfg. Co., Grant F. Discher and Diana Discher, of Milwaukee, to dissolve the temporary injunction granted on June 21, 1910, to the Parsons Non-Skid Co., restraining the defendants from producing a device known as a Superior grip for motor car tires. The Parsons company contends that the Superior grip is an infringement upon its Victor grip non-skid device. In giving his decision, Judge Sanborn related that the tire-grip or non-skid idea originated by accident with Dr. Lowrey of Neola, Ia., as far back as 1895. Dr. Lowrey's bicycle skidded on a wet pavement, throwing him and breaking three ribs. He devised a rope arrangement for the tires of his bicycle, from which has developed the non-skid chain device for motor cars.

CROXTON-KEETON AFFAIRS

Canton, O., Sept. 13—In the matter of the bankruptcy situation of the Croxton-Keeton Motor Co., of this city, A. M. McCarty, referee in bankruptcy, announced today that notice was given to all parties concerned that P. L. McLain, trustee of the Croxton-Keeton Motor Co., has filed his petition for an order of sale of real estate belonging to the Croxton-Keeton estate, and that the same has been assigned for hearing before the referee at his office September 24, 1910, at 9 o'clock. Further announcement is made that Mr. McLain has filed his petition for an order to continue the business of the Croxton-Keeton until further order of the court and that the same has been assigned for hearing at the above date. Further notice is given that a petition has been filed for an order of sale of personal property belonging to the Croxton-Keeton estate, and that this has been assigned for hearing the same date.

TWOMBLY SELLS FRENCH RIGHTS

New York, Sept. 17—W. Irving Twombly of the Twombly Motors Co. announces the sale of the French patent rights of the Twombly Power Co. to Bernard Maimon, the proprietor of Le Matin of Paris, France. The patents cover the Twombly motor and quick detachable power plant for taxicab and commercial use, recently described in Motor Age.

Cincinnati Holds Floral Parade

CINCINNATI FLORAL PARADE—MOST ELABORATELY DECORATED CAR OF SONS OF OSIRIS

CINCINNATI, O., Sept. 19—The leading motoring event of the season here, and the most artistic, unique and generally interesting feature in connection with the Ohio valley industrial exposition, was the floral parade on Wednesday, under the auspices of the Sons of Osiris, a patriotic organization whose avowed object is the glorification of the Queen City. The prizes offered aggregated more than $1,500, and nearly one hundred cars entered into the competition. Much of the success attained was due to the enthusiasm of the membership of the Cincinnati Automobile Club, many of whom participated in the parade. An impressive and gorgeous spectacle was the massing of the cars in Government square, under the eye of the judges, where two immense grand stands had been erected, and where three bands, with their fifty-two pieces, furnished suitable music. So varied, original and clever were the designs that the judges were obliged to reconsider again and again the various points of merit in the competing cars before awarding the prizes.

The parade started promptly at 2 p. m. and was led by the huge machine of the Sons of Osiris, uniquely and beautifully decorated, though not competing for a prize. The car of the Cincinnati club was accompanied by two smaller cars as outriders, also decorated. Much interest centered in the car of the Automobile Guests' Protective Association, a unique organization recently formed here, the members of which declare themselves as averse to owning cars but as believing in using cars borrowed from their friends. Their car on this occasion was a borrowed one, in which they sat at their ease, smoking cigars and enjoying every sign of luxury.

In advance of the parade was a program car, which distributed 50,000 programs, giving the list of entrants and their numbers, so that each car could be easily identified. Accompanying the parade also was a repair car carrying accessories and expert mechanicians. The cars were lined up in four classes and the prizes distributed as follows by the judges:

Special prize, $50, for handsomest electric driven by a woman, Miss Alma Bettinger.

SMALL CARS

First prize, $200, Miss A. L. Englehart. This car had wistaria vines trailing over a green pergola, with young women in colonial costume as passengers.

Second prize, $100, Albert Diem. This car was decorated with natural flowers.

Third prize, $50. This car had a trellis with grape vines.

TOURING CARS

First prize, $350, Guy Bevis. This car was in iris and lavender effects, with women passengers dressed to match.

Second prize, $150, W. E. Hutton. This car had wisteria decorations, with children in Japanese costumes.

Third prize, $75, J. T. Carew. This car had Cupid driving a pair of eagles as the main decoration.

CARS ENTERED BY ORGANIZATIONS

First prize, $350, Allen Conkling. This car, financed by a group of men, had gold roses on white background.

Second prize, $150, McMahon, Jackson & Co. This car was decorated in orchids.

Third prize, $75, Queen City Electric Co. Red roses decorated this car.

Honorable mention was given in class 2 to the cars of W. W. Balke, the sunflower car; L. D. Drewry, H. B. McCullough, Jacob Moerlein and Otto Armleder; and in class 3 to the car of the Susan B. Anthony Club.

BADGERS HOLD MEETING

Milwaukee, Wis., Sept. 19—Good roads, stricter enforcement of the highway sign law and encouragement of safe and sane driving were the important topics discussed at the annual meeting of the Wisconsin State Automobile Association last week. A. G. Batchelder, chairman of the executive committee of the A. A. A., was the principal speaker. Mr. Batchelder pointed out the importance of close association of motorists to gain better laws, and said the greatest need of the day was education of the public. Alfred C. Burrill, of the Milwaukee public museum, gave an illustrated lecture on modes of travel, showing that as the mode of travel was improved better highways were demanded. He illustrated the roads of Wisconsin and showed the beautiful scenery of this state as an inducement for highway improvement to attract outsiders. W. O. Hotchkiss, chief of the highway division, Wisconsin Geological and Natural History Survey, gave a practical talk on road building to suit local conditions. The by-laws were amended to make the time of the annual meeting on the principal day of the annual Milwaukee motor show, with a semi-annual meeting at the point of the over-Sunday stop during the annual Wisconsin reliability tour. It was decided to increase the board of directors from fifteen to twenty-five members. These directors were elected: M. C. Moore, George A. West, Oscar F. Fischedick, C. W. Norris, James T. Drought, Milwaukee; Mayor A. J. Horlick, Racine; Neal Brown, Wausau; W. K. Coffin, Eau Claire; Faustin Prinz, Milwaukee; James A. Wright, Merrill; H. L. Halverson, Whitewater; H. E. Gordon, Waupaca; F. W. Kingsbury, Ripon; H. L. Colman, LaCrosse; O. A. Eastman, Platteville. The ten additional directors will be elected later.

The board of directors will meet within a few weeks to elect officers. President M. C. Moore most likely will be honored with re-election.

SPRINGFIELD MOTOR-ENTHUSED

Springfield, Ill., Sept. 00—The Illinois state fair of 1910 will be the greatest motor fair of any held in any state this season, it is declared here. All arrangements have been completed for the motor car and motor cycle races as well as the aeroplane flights. The car contests will commence on the first day of the fair and continue throughout the exposition to a greater or lesser extent. The first day, Friday, September 30, will be the scheduled date for the arrival of cars from all parts of the state, competing for reliability run prizes, offered by the state board of agriculture. The second day, Saturday, October 1, will be the only day set aside exclusively for the motor car on the track. The cross-country tours on the opening day will be featured by the board of agriculture. Any car is eligible to enter. The start must be made in order to reach Springfield by 9 o'clock Friday morning, when all cars must check in at the St. Nicholas hotel with John H. Caldwell, director of contests. The contesting cars must carry registry books on the route, and must at least have the time of starting and bear the signature of the mayor or other official of the city from which the car starts, or must be signed by a newspaper representative. For each additional signature secured, of either a city official or newspaper representative en route, an extra credit of 10 points will be given. The car having the highest number of credits will be declared the winner from the city from which it started. The cars in entering Springfield must come by way of Bloomington, Peoria, Havana, Beardstown, Jacksonville, Carlinville, Litchfield, Taylorville, Decatur, Clinton or Lincoln. Thirteen events of various sorts are scheduled

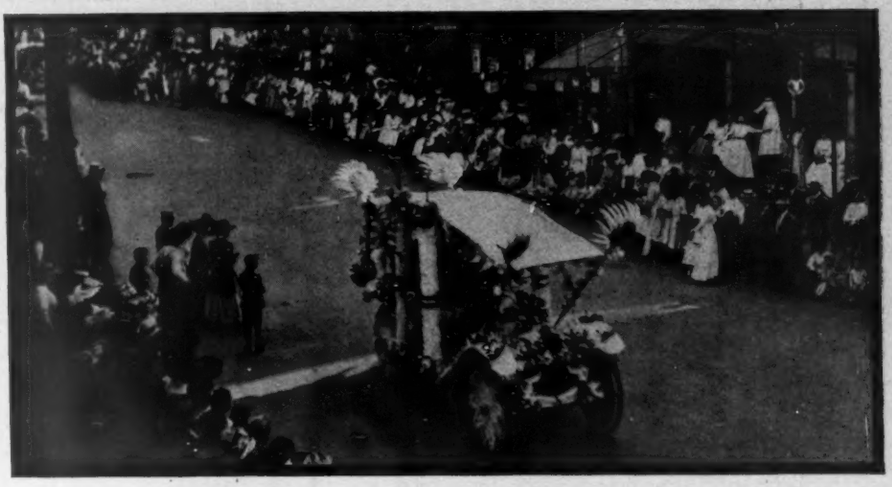
for Saturday, October 1, between motor cars, airships and between each other.

The Springfield Automobile Club is making extensive plans for entertaining the visitors. For some time the club has been a dead issue, but with the approach of the fair, the old officers called a special meeting, at which time they stated their intention of resigning in order to allow younger men, who could devote the necessary amount of time to the offices, to take the reins. A membership boosting crusade has been started, and every new member will be given a ticket to the fair good on motor day.

TRIBUNE TROPHY ROUTE

Minneapolis, Minn., Sept. 17—The third annual contest of the Automobile Club of Minneapolis for the Tribune trophy, the club trophy, and a good roads trophy to be presented by the club to the county through which the tour passes which provides the best roads, starts September 30, returning October 3. The run will be made from Minneapolis, Minn., to Aberdeen, S. D. The route for the first day will be from Minneapolis to Morris, distance 161.6 miles; through Wayzata, Long Lake, Maple Plain, Delano, Montrose, Waverly, Howard Lake, Dassell, Darwin, Litchfield, Atwater, Kandiyohi, Willmar, Pennock, Kerkhoven, Murdock, De Graff, Benson, Clontarff and Hancock; second from Morris to Aberdeen, distance 165.8 miles; through Alberta, Graceville, Beardsley, Brown's Valley, Sisseton, Eden, Luffman, Britton, Amherst, Claremont, Huffton, and Putney; third day, being Sunday, will be spent at Aberdeen; fourth day from Aberdeen to Montevideo, distance 176.1 miles; through James, Groton, Andover, Briston, Holmquist, Webster, Summit, Twin Brooks, Milbank, Big Stone, Ortonville, Appleton, Milan, Watson; fifth day from Montevideo to Minneapolis, distance 157.6 miles; through Myers, Granite Falls, Sacred Heart, Olivia, Bird Island, Hector, Buffalo Lake, Stewart, Brownton, Glencoe, Plata, Norwood, Bongards, Cologne, Chaska, Shakopee, Automobile Club, Bloomington, and Richfield. Dinner controls will be at Litchfield, Sisseton, Milbank and Glencoe. Dr. C. E. Dutton will be referee; C. A. Stedman, of the Minneapolis Tribune, pilot; W. E. Roby, chief observer; W. A. Winshow, chief checker; J. H. Prior, noncontestant; J. Edward Smith, publicity. Elaborate plans for entertainment are being provided by members of the clubs and others in towns through which the contestants will pass. This is especially true of Aberdeen, S. D., the people of that city sparing no expense in making the visit one long to be remembered. At Morris, Minn., a duck dinner and smoker will be tendered the visitors. Milbank, S. D., will provide a like program. On the fifth day a buffet luncheon will be served at the Bloomington country home of the Minneapolis Automobile Club, which will be largely attended, it is thought.

Chicago Reliability in November



CINCINNATI FLORAL PARADE—MISS ENGLEHART'S CINO, A PRIZE WINNER

CHICAGO, Sept. 20.—The annual 1,000-mile reliability of the Chicago Motor Club will be held November 7, 8, 9, 10 and 11 instead of in the middle of October as originally planned. The club has been particularly busy this summer with its economy run, national stock chassis road races and hill-climb and felt that it required considerable time to organize such a big contest as the annual reliability, and so the November dates were chosen. While the exact route has not been laid out as yet, the territory to be covered will be Illinois, Indiana and Iowa, and instead of it being a 250-mile-a-day run spread over 4 days, it will be a double-century a day for 5 days. This step is taken because of the shortness of the days in November. Five trophies have been arranged for. There will be cups for the touring car division, for the runabouts, a gasoline economy trophy, a tire trophy and a team trophy. In the last named two cars to a team will be considered. If more cars than two of a make enter, the two best scores will be considered. The entry fee will be $100 for the first entry, $50 for the second and $25 for the third.

In many respects the November reliability will resemble the last one the club held, which was in 1907, when the economy and tire trophies were inaugurated. The idea is original here and while not generally adopted by other clubs, it was found to work so well that it was determined to repeat these this time. The demand made by tire makers for some sort of a test that will show the worth of their product and give them a chance to get into the competition game on an official footing has been met.

BLANKS OUT FOR $25,000 RACE

Indianapolis, Ind., Sept. 20—Making good on the preliminary announcements of its 1911 program, the Indianapolis Motor Speedway Co. today issued entry blanks for its 500-mile international sweepstakes, which event is scheduled for Saturday, May 27. The race will be for the biggest purse ever contested for by motorists, the total reaching $25,000 and divided into ten prizes, as follows: First prize, $10,000; second, $5,000; third, $3,000; fourth, $2,000; fifth, $1,500; sixth, $1,000; seventh, $800; eighth, $700; ninth, $600; tenth, $500. The entry fee for each car is $500 until March 1, 1911; after March 1 and until May 1, $750 per car. To be eligible cars must show a speed of 75 miles per hour and be in the class C division, which specifies a piston displacement of 600 cubic inches or less and a minimum weight of 2,300 pounds. The management reserves the right to cancel the event and return the entry fee unless thirty entries have been received by March 1.

BALDY RACE IN DANGER

Los Angeles, Cal., Sept. 17.—For the first time in 5 years there is every indication that there will be no road race in Los Angeles to Mount Baldy this fall. This is due to several circumstances. William R. Ruess, who won the race last year, has placed the entrance fee at $1,000. Many who would enter consider this too high. Up to this date there is not one contestant to fight for the Baldy honors. Then again there is the Santa Monica road race and the big Phoenix event in November which demand the attention of the southern California dealers who are interested in races. Another thing which probably will prevent the race is the condition of the roads. The San Fernando road, over which part of the race is run, is badly torn up on account of the highway work which is being done in that district. This work will not be completed for a couple of months, and it would not be advisable to run the race before spring. As the motordrome opening and the Santa Monica road race are both set for Thanksgiving day this will mean a postponement of the annual mile high climb at Redlands, Calif. It would not be surprising if this was postponed to February 22, 1911.

ENGLAND HAS A NEW ROTARY VALVE DESIGN

LONDON, Eng., Aug. 30—The agitation of the slide-valve motor has been directly responsible for one more patented valve device by W. McLeod, Coventry, Eng., illustrated herewith, and which is unique in that one poppet valve V serves for both intake and exhaust purposes, this being accomplished by locating the valve in a rotating cage K with a slightly oblong opening P in said cage which in the illustration is shown registering with the intake opening IP, but when turned 180 degrees would be in register with the exhaust opening EP. Once this cage port registers with the intake or exhaust passage all that is needed to complete the valve action is depressing the valve V in the ordinary way by means of the overhead rocker arm R. This might be described as a combination poppet and rotary valve.

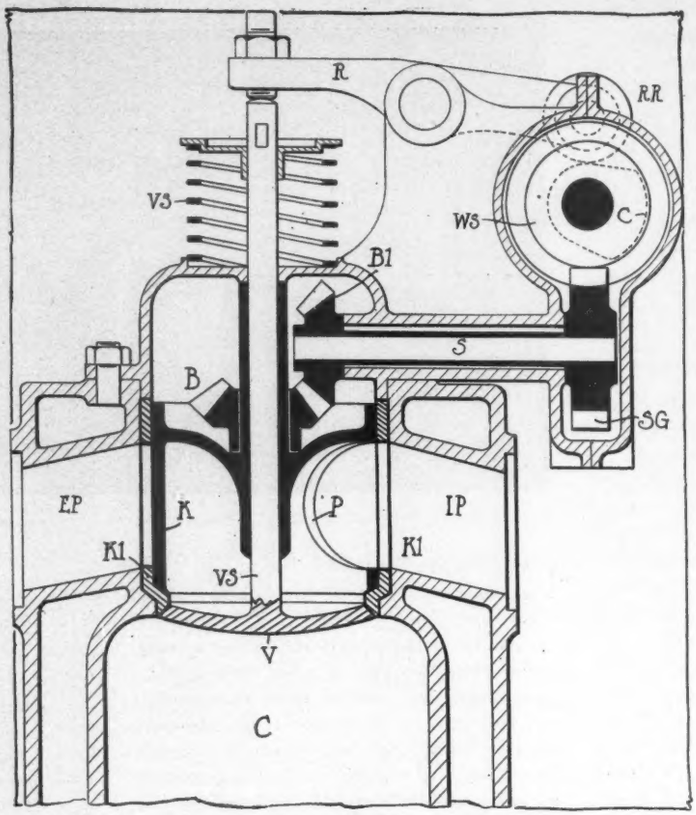


FIG. 1—COMBINATION POPPET AND ROTARY VALVE

The special value of using one valve for intake and exhaust purposes is that using but one valve for a cylinder the diameter of that valve can be specially large so that the mixture will have free entry to the combustion chamber and the exhaust gases free exit. Having both intake and exhaust gases passing through the same valve has the advantage of keeping the temperature of the valve reduced, the cool intake gases having a marked refrigerating effect on the valve heated by the hot exhaust cases, and so guarding against warping of the valve.

The illustration shows clearly the details of construction for opening the valve V and rotating the cage K. A camshaft WS carries cams C which act on the rollers RR, thereby actuating the rocker arm R and depressing the valve through the valve stem VS. Because of the valve serving for intake and exhaust valve the camshaft is driven at one-half crankshaft speed. The poppet valve V controls the opening of the exhaust passage and closing of the intake, while the rotating cage K controls the closing of the exhaust and the opening of the intake passages.

The rotation of the cage K is through the shaft S driven from the camshaft through a worm meshing with the pinion SG. The shaft S carries a bevel pinion B1 in mesh with a corresponding pinion B attached to the hub of the cage K. Thus there is a constant rotation of the cage, this rotation being timed so that the port P registers with the intake or exhaust openings at the time of the valve opening. The cage K rotates in a shell K1 which shell forms the real seating for the valve V. The spring VS seats the valve as in ordinary gasoline motors.

In speaking of the operation of this valve the Autocar mentions its various merits. At the point where the exhaust opens the port P of the rotating cage K coincides with the exhaust passage EP, so that on the poppet valve being depressed by the cam there is a free and very ample area for the exit of the hot gases. The position of the rotary valve or cage K at the moment of opening of the poppet valve is shown in the plan diagram Fig. 3. It is to be understood that the poppet valve now remains open, whilst the rotary valve continues its revolution till it reaches the position shown by Fig. 4, when the opening to the exhaust is closed. Continuing further, it presently arrives at the position shown by Fig. 5, when it opens to the induction side, and the piston now on its downward stroke sucks in its charge of mixture. Just after the bottom of the induction stroke is reached the poppet valve closes and remains closed during the compression and working strokes of the piston. The rotary valve, which when the poppet valve closed was in the position shown by Fig. 6, continues its revolution till it again comes, as in Fig. 3, ready for the exhaust to open and the cycle of operations is repeated.

The advantages obtained with this arrangement are as follows: The rotary valve or cage K is not affected by the explosion or compression pressures within the cylinders. There is not any pressure on this valve at all except when the motor is throttled down, in which case it is subjected for a short time during each revolution to the suction which exits in the induction pipes of perhaps 6 or 8 pounds per square inch. As the lubrication of this rotating cage does not present any difficulties there should be not any wear to speak of in the valve.

Because the poppet valve V remains open twice as long as do poppet valves in a motor where there is one valve for the intake and another for the exhaust, and because the lift of the valve is not half that of the regular poppet it follows that the valve action is quieter and the wear and tear less.

From a constructional point of view there would appear to be no difficulties of a serious nature, good and exact workmanship being the main essentials.

Another advantage, which has not been touched upon in the foregoing, lies in the fact that the poppet valve and the exposed parts and surfaces within the rotary valve, after being heated up by the outgoing exhaust, are immediately cooled down again by the incoming cold mixture. This might perhaps be taken exception to on the score that by raising the temperature of the incoming charge we reduce the volume which can be taken in by the cylinder. But there can be no question that such cooling down of the poppet valve head must have the effect of maintaining it in good condition and increasing its useful life, whilst there seems a strong probability that the parts would settle down to a mean temperature sufficiently low to be quite unobjectionable as regards the effect in altering the volume of the incoming charges. And having regard to the fact that in probably the majority of engines the carbureter sends a lot of "solid" fuel to the cylinders, a little excess heat to thoroughly gasify this would be an advantage if anything.

It will be understood that the particular form of construction shown in the illustration is not the only one possible. It is not necessary, for instance, to have a separate liner and valve seat, and in the case of light aeroplane engines, for which this valve would seem to be particularly well adapted, this would be omitted. It is possible also to adopt a spiral drive for the rotary valve with a continuous shaft instead of the arrangement shown. This construction gives a most compact

and accessible one. The use of gears over the cylinder head makes the lubrication problem an easy one and at the same time the problem of oiling the piston and cylinder walls is not interfered with. All of the parts are readily accessible for adjustments or repair. With this valve design a combustion chamber without any offsets is obtained, which is a desirable feature.

SHOW ON IN ARGENTINA

Buenos-Ayres, Aug. 16.—The international transportation exposition or fair which is being held in this city under the auspices of the progressive Argentina republic, is probably one of the greatest shows of this kind the world has ever known. As far as the motor car is concerned the industry is represented by most of the leading concerns of every leading car manufacturing country. The countries represented here in addition to the United States are, France, Italy, Germany, Belgium, Switzerland, Great Britain, Austria and Holland. The French cars shown are Delaunay-Belleville, Niclausse, Renault, Zedel Panhard-Levassor, Lorraine-Dietrich, Peugeot, Clement, Bayard, de Dion-Bouton, Darracq, Brasier, Charron. Just to give an idea of how some of the French concerns consider such fairs as this one, be it known that Panhard-Levassor has on display eighteen of its cars. While some of the machines are identical in construction, every car has a different kind of body and the eighteen different bodies represent by themselves a very complete exhibit of the art of French body-making as they were made by more than half a dozen different body makers, such as Labourdette, Reims & Auscher, Mulbacher, Rotschild, Audineau.

In the Italian section are to be found the Fiat, Zust, Isotta-Fraschini, Itala, S. P. A., Bianchi, and F. R. A. M. Touring cars, racing cars and commercial and industrial vehicles are shown and the British trade is well represented by Napier, Humber and the Daimler. Mercedes and Benz, the veterans of the German industry, and the Gaggenau, keep the people in mind that Deutschland occupies a big place as a motor car manufacturing country. From far-off Belgium three big concerns have sent over samples of the best cars they make. There are shown the Germain, the Minerva and the F. N., the last named being specially constructed machines for use in Argentina. Holland is represented by the Spiker. Switzerland has as usual at all

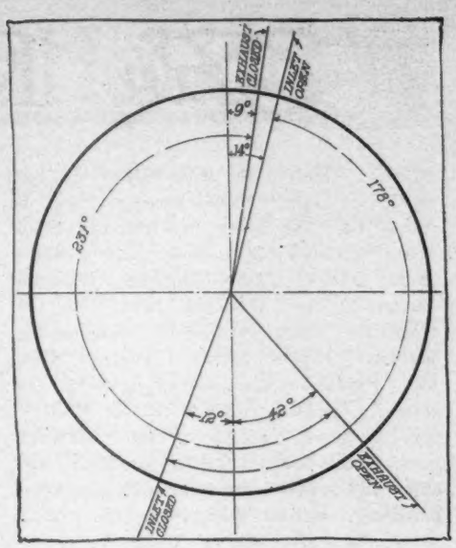


FIG. 2

shows the Saurer industrial vehicles. There are also some motor boats on display as well as a few aeroplanes, but they are not of the latest design. In the way of motor accessories leading concerns of all countries are represented, such as Dunlop, Michelin, Continental, Goodrich, Mestre & Bladge, Nilmelior, Bosch, Eisemann, Pirelli, etc.

TEST OF GNOME MOTORS

Paris, Sept. 10—During the official tests held at the laboratory of the Automobile Club of France the new Gnome fourteen-cylinder 100-horsepower motor failed to give the results claimed for and expected of it. The first test lasted 28 minutes 32 seconds, being stopped by the breakage of an intake valve spring. During the first 15 minutes the motor averaged 76.1 horsepower, at a speed of 1,128 revolutions; during the remainder of the time, at 783 revolutions a minute, the average power was 25.6 horsepower. During the 28 minutes 32 seconds the motor was under test its average speed was 1,004 revolutions a minute; average power, 52.97; total consumption of gasoline 5 kilos 700—12.7 pounds—total consumption of lubricant—castor oil—4 kilos 400—9.6 pounds; specific consumption of gasoline per horsepower-hour, 0 kilos 226; specific consumption of lubricant per horsepower-hour, 0 kilos 174; weight of the motor 304.6 pounds.

A second trial was stopped at the end of 59 minutes 3 seconds by reason of the breakage of two spark plugs. On the third test the motor was stopped voluntarily, and at the request of the owner at the end of 1 hour. The average speed and power for each 15 minutes were as follows: 1,135 revolutions, 74.40 horsepower; 1,112 revolutions, 69.90 horsepower; 1,100 revolutions, 67.78 horsepower; 1,098 revolutions, 67.58 horsepower. The average speed during the 1-hour's test was 1,111 revolutions a minute and the average power 69.89 horsepower. The consumption of gasoline for the hour was 22 kilos 700 or 46.6 pounds; total consumption of lubricant, 11 kilos or 24.2 pounds; specific consumption of gasoline per horsepower-hour, Ok. 324 or 0.71 pounds; specific consumption of lubricant per horsepower-hour, Ok. 157 or 0.34 pounds; total weight of motor 304.6 pounds; weight per horsepower, 4.5 pounds. The tests were made on the first motor of this type produced at the factory. In the Gnome works 95 horsepower had been obtained.

The only other competitor in the same category was a revolving two-cylinder air-cooled Farcot motor, which stopped dead at the end of a few minutes by reason of the seizing of an aluminum piston.

A test also was made for motors having a total weight of less than 330 pounds. Out of nine entries only six were put under test, and of these but two, both seven-cylinder Gnomes, were run for the full 3 hours. A four-cylinder Aster, 5.1 by 5.5 inches bore and stroke, broke its crank case at the end of 2 hours 39 minutes; a four-cylinder Lemale, 4.3 by 4.7 inches bore and stroke, broke a lubricating pipe on the first trial and on the second sent a broken connecting rod through the crank chamber. Of the two seven-cylinder Gnome motors, which alone finished the test, one averaged 44 horsepower and the other 42.1 horsepower. In the first case the total consumption of gasoline was 83.7 pounds and total consumption of oil 24.3 pounds; specific consumption of gasoline per horsepower-hour 0.64 pounds; specific consumption of lubricant per horsepower-hour 0.19 pounds.

The second motor, developing 42.1 horsepower at an average of 1,150 revolutions a minute, consumed a total of 9.26 pounds of gasoline and 2.206 pounds of lubricant. The specific consumption per horsepower-hour was: gasoline, 0.73 pounds; lubricant, 0.17. In each case the motor was the seven-cylinder type with a bore and stroke of 4.3 by 4.7 inches.

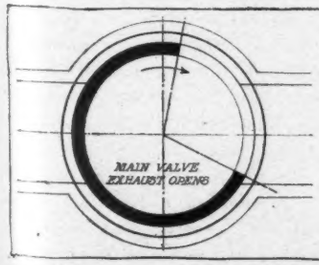


FIG. 3

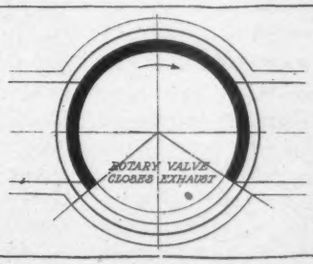


FIG. 4

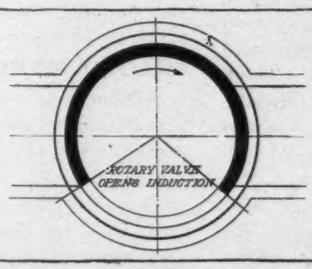


FIG. 5

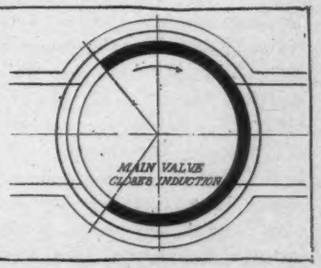


FIG. 6

THIRD CYLINDER MISSES

CENTRALIA, WASH.—Editor Motor Age—My second cylinder from the back misses on low throttle. I have ground the valves, cleaned the carbon from the cylinders, cleaned the spark plus, tried out the ignition part and changed the carbureters. Can Motor Age tell me where the trouble lies?—M. M.

It is impossible to designate your trouble accurately, not knowing your ignition system; that is, whether you use storage battery with four-unit coil and timer, or if you use a high-tension magneto, or if you employ a low-tension magneto with a single-unit coil. The fact that this miss is on low throttle only would suggest that your trouble was not with the ignition but with your carburation, and the fact that it is on the third cylinder would suggest that it is not a fault of the carbureter but rather some feature in conjunction with that third cylinder. It may be that you have a leaky gasket on that cylinder or a leak in the manifold adjacent to that cylinder, or a leak around the valve guide of that cylinder. On the face of it it appears that an air leak is the undoubted cause, because this air leak would cause a trouble that would exhibit itself at low speeds, although perhaps not at high speeds. Should the trouble not be with your piping arrangement and you make use of a timer, it would be well to make an examination of the segments to see if proper contact is made at low speed.

KANSAS-PENNSYLVANIA ROUTE

Industry, Kan.—Editor Motor Age—Will Motor Age, through the Readers' Clearing House, kindly give me the best route from Junction City, Kan., to York Pa., either by way of Baltimore or Pittsburg?—S. W. Schenberger.

From Junction City, Kan., Motor Age suggests that you travel via Fort Riley, Ogden, Wabaunsee, Wamego, Belvue, St. Mary's, Rossville, Kingsville, Silver Lake, Topeka, Lecompton, Lawrence, Eudora, De Soto, Monticello, Shawnee, Merriam, Rosedale to Kansas City. From this point to Chicago, by way of Council Bluffs, a good route to follow is that which was traversed by the Glidden tourists this summer, namely, through White Church, Piper, Wallula, Lansing, Leavenworth, Lowemont, Atchison, Rushville, Halls, South St. Joseph, St. Joseph, Savannah, Maryville, Wilcox, Burlington Junction, Tarkio, Shenandoah, Randolph, Tabor, Glenwood, Council Bluffs, Weston, Underwood, Neola, Minden, Avoca, Walnut, Marne, Atlantic, Lorah, Brayton, Exira, North Branch, Monteith, Dale, Redfield, Adel, Waukee, Des Moines, Altoona, Mitchellville, Colfax, Newton, Kellogg, Grinnell, Brooklyn, Ladora, Marengo, Blairstown, Van Horn, Newhall, Atkins Cedar Rapids, Webster, Shueyville, Curtis, North Liberty, Iowa City, Atalissa, Moscow, Durant, Davenport, Rock Island, Watertown, Rapid City, Port Buron, Cordova, Albany, Emerson, Sterling, Dixon, Asjton, Rochelle, Malta, De Kalb, Geneva, Lombard, Chicago. From Chicago, Ill., to York, Pa., the route lies through Hammond, Michigan City, New Carlisle, South Bend, Elkhart, Goshen, Ligonier, Wawaka, Butler, Stryker, Wauseon, Java, Lemoyne, Hessville, Fremont, Clyde, Monroeville, Norwalk, Elyria, Dover, Cleveland, Randall, Parkman, Warren, Youngstown, Petersburg, Beaver Falls, Rochester, Sewickley, Alleghany, Pittsburg, East McKeesport, Greensburg, Ligonier, Bedford, Everett, McConnellsburg, Chambersburg, Shippensburg, Carlisle, Harrisburg, Pa. For a route from Harrisburg to York, Motor Age suggests that you call on the Harrisburg Motor Club.

The Readers'

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

SUGGESTIONS ON CUT-OUT

Montezuma, Ia.—Editor Motor Age—A great many small towns are supplied with a direct-current lighting circuit only part of the night or day. Often a person may be caused some inconvenience and expense in getting the battery cut off the charging circuit at the proper time that it may not discharge itself back through the plant. An inexpensive switch may be made of a small common alarm clock in which the alarm winds on the back by a long flat thumb screw. Use a knife switch with a lever attached, the outer end of which will slip under one side of the alarm thumb screw. Attach a spring of sufficient tension to this lever so it will open the knife switch when the thumb screw turns and releases the lever. By good workmanship the above principle may be made most effective.—W. E. McKee.

WANTS TIRES ON FREE LIST

Crestline, Ohio.—Editor Motor Age—The cost of tires is such today that it is almost impossible for the man in average circumstances to operate a car. Take the ordinary touring car today with 32 by 4-inch tires. The tire cost of such a car is at least 5 cents a mile, which is entirely too high and out of proportion to the other running expenses. The time is near at hand—at least I hope so—when motor car manufacturers will be completed, for their own protection, to furnish their patrons with good tires at reasonable prices. Why not place tires on the free list? I should like to hear what motor car manufacturers and owners in general think about this matter.—A Subscriber.

FIELD OF SELDEN PATENT

McHenry, Ill.—Editor Motor Age—Is it a fact that the main claim of the Selden patent is the use of a clutch between the engine and the drive wheels so as to allow the engine to be started without its load, in order that the engine may gain momentum to start the car? A friction clutch is no new thing. The writer used a friction clutch for practically the same purpose in a mill in New Hampshire. The water wheel could not move its regular load at the start, so a clutch was used. The water was turned on the wheel and when the wheel had gained a good speed the friction clutch was slowly engaged and the load moved. This was more than 55 years ago. —J. Berry.

The strength of the Selden patent consists in that it covers a combination consisting of a hydrocarbon or gasoline motor of the present compression type, a clutch, a transmitting means to the rear wheels, and it is this combination and not the several units referred to that the patent specially relates to.

ROUTE FROM ILLINOIS TO OMAHA

Charleston, Ill.—Editor Motor Age—Will Motor Age, through the Readers' Clearing House, give me a route for the following trip? I want to go from Charleston, Ill., to Omaha, Neb., then to Topeka, Kan., and to Neosho, Mo., and back home.—Ed. McIntyre.

Motor Age suggests that on the Omaha leg of the trip you go south to Greenup, then west to St. Louis, passing through Woodbury, Montrose, Teutopolis, Effingham, Dexter Station, Altamont, St. Elmo, Bluffs City, Vandalia, Hagerstown, Mulberry, Greenville, Pocahontas, Highland, Collinsville, East St. Louis, St. Louis. From St. Louis to Omaha, via Kansas City, the route is through Wellston, St. Charles, Cottlesville, Wentzville, Forestell, Wright, Warrenton, Jonesburg, High Hill, New Florence, Montgomery, Wellsville, Martinsville, Mexico, Thompson Station, Clark, Reniek, Higbee, Yates, Armstrong, Glasgow, Slater, Marshall, Shackleford, Mount Leonard, Blackburn, Corder, Higginsville, Mayview, Odessa, Oak Grove, Grain Valley, Independence, Centropolis, Kansas City, Lansing, Leavenworth, Lovemont, Atchison, Rushville, Hall, St. Joseph, Savannah, Maryville, Wilcox, Burlington Junction, Tarkio, Shenandoah, Randolph, Tabor, Glenwood, Council Bluffs, Omaha. From Omaha, Neb., to Topeka, Kan., return via the same route as far as Kansas City, then go west through Rosedale, Shawnee, Monticello, De Soto, Eudora, Lawrence, Lecompton, Topeka. From Topeka, Kan., to Neosho, Mo., return as far as Kansas City via the same route. Motor Age has no route covering the bal-

Clearing House

EDITOR'S NOTE—To the Readers of the Clearing House columns: Motor Age insists on having bona fide signatures to all communications published in this department. It has been discovered that the proper signature has not been given on many communications, and Motor Age will not publish such communications, and will take steps to hunt down the offenders of this rule if it is violated.

ance of the trip to Neosho, and would suggest that you call on the secretary of the Kansas City Automobile Club, who undoubtedly will be able to furnish you with the desired route directions. From Neosho, Mo., to Charleston, Ill., unless you desire to make the return trip the same as the going, Motor Age suggests that you take the matter up with the secretary of the Kansas City Automobile Club, who may be able to give you a new route to St. Louis, or you may be able to secure the information from the St. Louis Automobile Club.

HALF-MILE TRACK RECORDS

Sikeston, Mo.—Editor Motor Age—Will Motor Age through the Readers' Clearing House kindly give me the fastest time ever made on a circular ½-mile track with any powered car?—J. L. Matthews.

The record of 1:00⅘ made by Barney Oldfield at Toledo last Saturday is the best on a ½-mile track. Half-mile records are not recognized by the A. A. A., so more definite information is not at hand.

BEWARE OF CAYUGA

Syracuse, N. Y.—Editor Motor Age—We quote the following from a letter received to-day from a tourist traveling to Rochester, who passed through the town of Cayuga: "Yesterday in touring from Utica to Rochester, we were obliged to pass through Cayuga on account of closed state roads. In coming into the town, we rounded a sharp curve, and came upon the wearer of a policeman's star, who claimed we had violated a state law by not sounding our horn. We had our cut-off open, which made a better signal than the horn, and in this respect we complied fully with the law in giving notice of our approach. This country policeman got another townsman to confirm his view of the matter and the justice was undecided what to do, but concluded to take the testimony of the accusers against ours. They both admitted that our speed was very low and not dangerous, but claimed a technical violation of the law. We claimed entire compliance with the law in every respect, as we ran at a slow speed and gave notice of our approach by our cut off. We paid them $8.45, which was the end of the whole affair. Please notify tourists of the danger, as there is no chance of getting away by high speed, for we have to cross the lake by barge."

The following quotations from the state law show that the tourist was imposed upon: "* * * and a suitable and adequate bell, horn, or other device for signaling." "* * * shall also, when approaching a cross road outside the limits of a city or incorporated village, slow down the speed of same, and shall sound his bell, horn or other device for signaling in such a manner as to give notice and warning of his approach."—Automobile Club of Syracuse.

FIGURING MILES PER HOUR

Detroit, Mich.—Editor Motor Age—The matter of figuring miles per hour for distances traveled by motor cars is one of special importance to many people who attend road races and track meets, and I am submitting herewith a formula for the estimation of speed in miles per hour when the total running time is given in minutes, and when it is given in seconds.

Given: Time in minutes and seconds and distance.

Using minutes.

Formula is:

$$\frac{D}{T} = MPH$$

$$\frac{}{60}$$

Divide the time in minutes and fractions thereof by 60. Then divide the distance by this quotient, disregarding decimal points, and the result will be the average speed in miles per hour for the distance.

Example: 105.5 miles in 113 minutes 30 seconds.

```
60)113.5
  ------
1.89)105.5 (55.8 miles per hour.
     945
     ----
     1100
      945
     ----
     1550
     1512
     ----
```

Using seconds,

Formula is:

$$\frac{36}{T \text{ (Time in seconds)}} = MPH.$$

Divide 36 by the time in seconds, the distance being 1 mile.

Example: 1 mile in 45 seconds—

```
45)36 (80 miles per hour.
  360
  ---
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Frank H. Trego.

THE MULTI-STORY GARAGE

Columbus, O.—Editor Motor Age—Will Motor Age kindly give me a little information on the following: 1—Is a garage four or five stories high objectionable on account of not all of it being on the ground floor, if a first-class elevator is used for carrying the cars up and down? In this case the principal business would be storage.

2—Would it not be better to have a four or five-story building centrally located than an all-ground floor building not nearly so well located?

3—Does Motor Age know of any places of more than one story being successful when storage is the principal business.—Subscriber.

1—A garage four or five stories high is very desirable in a large city, and especially if located in the business section, where land is very valuable. There are garages of this nature in New York and Chicago, and which give the best satisfaction.

2—It would be much preferable to have the central location with a four or five story building.

3—Multi-story garages are common in New York, Philadelphia, Boston, Chicago and some other cities.

TUBULAR OR CELLULAR RADIATORS

Bloomington, Ill.—Editor Motor Age—I would like to know the characteristics of a honeycomb radiator. Does the water flow horizontally as well as vertically through that type of radiator? Are cellular radiators honeycomb? Is a radiator formed of zigzag vertical tubes touching at the corners of the zigzag and having no horizontal communication between tubes correctly called honeycomb?—William Canerd.

For convenience, it is customary to use the words honeycomb and cellular to designate the same type of radiator, both being in contrast to the tubular type. In order to grasp the difference between a cellular and tubular construction, it must be borne in mind that the water in a radiator has to get from the top to the bottom. It enters the top of the radiator hot from the waterjackets and leaves the bottom of the radiator relatively cool in its course to the waterjackets again. In a tubular radiator, if vertical tubes are used, the water, in going from the top to the bottom, can go through any one of forty or more tubes. Should one tube become clogged, all of the water will have to go through the other thirty-nine. Each tube is a separate path from the upper water tank to the lower one. There are, so to speak, forty separate paths for the water, any one of which it could take should all of the others become clogged. The comparison is the same as forty telegraph wires leading from one city to another. In the cellular radiator there are not separate paths from the top to the bottom. The water passages rather constitute a system of spaces or cells similar to the cellular construction of plant life. Generally speaking, cellular radiators are formed in three or four divisions, these divisions being indicated by the horizontal lines across the front of the radiator. Where each horizontal line crosses the radiator there is an open horizontal water

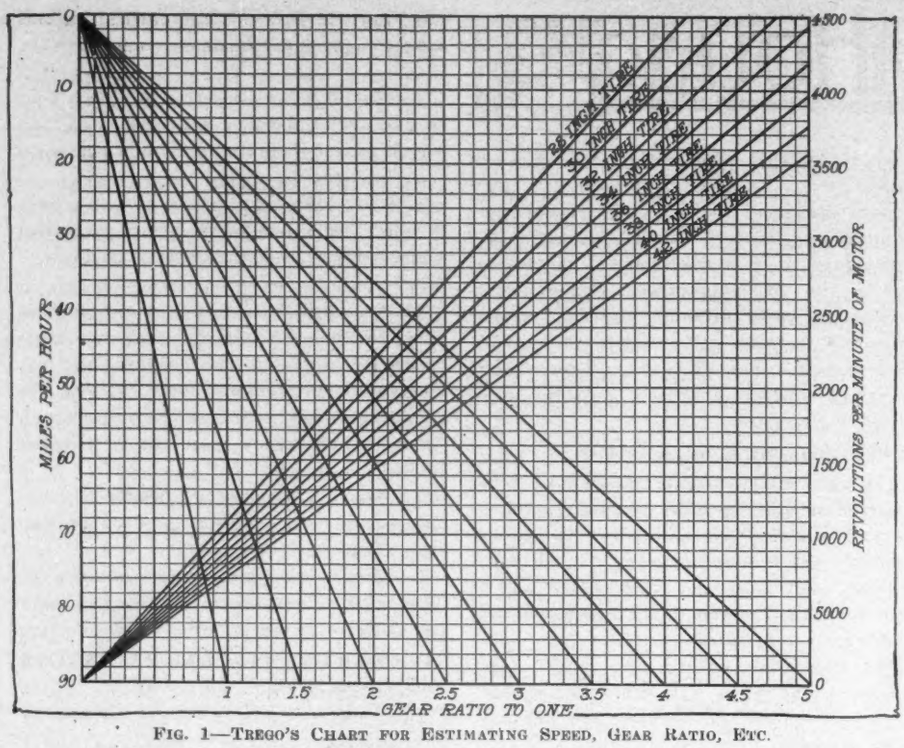


FIG. 1—TREGO'S CHART FOR ESTIMATING SPEED, GEAR RATIO, ETC.

passage in which the water can flow from side to side as it chooses. In each division there is a series of zigzag water spaces. In some types of cellular radiators these spaces really are zigzag tubes, but in others they not only offer an up-and-down direction of flow, but also interconnect to give a horizontal flow as well. There is thus no clearly defined passage, though the water must flow in a certain direction, as is the case with tubular radiators. Strictly speaking, the radiator with zigzag vertical passages is not a honeycomb type, nor is it a tubular, in that you could not under any circumstances apply the term tube to those flat zigzag passages of which you speak.

CHAUFFEUR'S LICENSES

Crawfordsville, Ia.—Editor Motor Age—Will Motor Age kindly answer the following questions through the Readers' Clearing House:

1—If a chauffeur holds a license granted in one state, is it necessary to obtain another license if he is employed in some other state?

2—What is the license fee in the states of Iowa, Missouri and California?

3—What are the average wages for a good chauffeur in Kansas City?

4—What make of four-cylinder car has proven to be the best hill-climber, and what kind of transmission was used?—A Subscriber.

1—In the motor car laws of some states there are no provisions relative to the licensing of a chauffeur, but in others he is required to take out a license for the state through or in which he is driving regardless of other state licenses that he may carry.

2—The state of Iowa has no provision for chauffeurs, and in California and Missouri a license fee of $2 is required.

3—The average wage of a chauffeur in Kansas City is about $80 per month.

4—Motor Age could not give any one make of car the credit for being the best hill-climber, for no one make of the four-cylinder type has as yet succeeded in demonstrating consistent superiority in this sort of competition.

FORT WAYNE TO NEW YORK

Decatur, Ind.—Editor Motor Age—Please advise me through the Readers' Clearing House as to the best route for a motor cycle trip from Fort Wayne, Ind., to New York City.—J. J. Berling.

From Fort Wayne to Lima you will find good gravel or stone roads over level country practically all the way, and from there to Columbus gravel or stone pike roads practically the entire distance over rolling country will be encountered. Leaving Fort Wayne, take in New Haven, Van Wert, Delphos, Elida, Lima, Westminster, Holden, Huntsville, Bellefontaine, Zanesfield, Marysville, New California, Dubin, Marble Cliffe and Columbus. A good route to follow from Columbus would be the 1907 Glidden tour to New York which is: Granville, Newark, Hanover, Nashport, Irville, Zanesville, Norwich, New Concord, Cambridge, Elizabethtown, Fairview, Hendrysburg, Lloydsville, St. Clairsville, Bridgeport, and Wheeling. From Vanesville to Wheeling there are toll roads most of the way. On the trip to Pittsburg, good time can usually be made in settled weather, but it is not a good wet-weather route. You can expect fair country roads or worn pike, with now and then patches of macadam. From Wheeling to Pittsburg, you will pass through W. Alexander, Claysville, Washington, Canonsburg, Bridgeville, and Carnegie; from Pittsburg go through Wilkinsburg, Turtle Creek, E. McKeesport, Circlesville, Irwin, Adamsburg, and Grapeville to Greensburg; thence across the mountains through New Alexandria, Blairsville, Armagh, Cramer, Geistown, and Windver, to Bedford. Travel nearly direct east over the mountains via Everett, Breezewood, Harrisonville, McConnelsburg, Ft. Loudon and Chambersburg; thence on to Fayetteville, Cashtown, McKnightstown, and Gettysburg. The beauty in the scenery over these mountains is a compensation for an occasional bad stretch of road. Passing through a part of the Gettysburg battlefield, follow the main-traveled pike through Littlestown, Union Mills, Westminster, Finksburg, Reisterstown, Pikesville, Baltimore, Towson, Lock Raven, Glenarm, Churchville, Havre De Grace, Perryville, Northeast, Elkton, Newark, Marshalltown, Wilmington, Chester, Norwood, Darby and Philadelphia; thence on to New York, passing through Ogontz, Bustleton, Langhorne, Oxford Valley, Trenton, Mercerville, Edinburg, Windsor, Hightstown, Cranbury, Dayton, Deans, New Brunswick, Metuchen, Rahway, Elizabeth, and Newark; follow the turnpike across the Meadows to the Hudson county boulevard and through Jersey City to the Twenty-third street ferry. This is the most-used, and ordinarily the quickest way into New York, using only one ferry.

AN IOWA ROUTE

Belmond, Ia.—Editor Motor Age—Some time ago Motor Age furnished me, through the Readers' Clearing House, with a route from Belmond, Ia., to Miller, S. D. For the benefit of other motorists I wish to state that the roads were in fine shape, and the further west we traveled the better the roads. We found many rocks in the roads in South Dakota and a driver must be on the lookout for them all the time. I made the trip up in 3 days, going by way of Mitchell, S. D., a distance of 436 miles. Returning, we made the trip in little less than 2½ days, a distance of 444 miles. Anyone desiring a route to the central or northern portion of South Dakota, I would recommend that they travel by way of Sioux Falls, Madison and Huron in South Dakota, and in Iowa through Emmetsburg, Spencer, Spirit Lake, Rock Rapids to Sioux Falls. My average was 18 miles over hills, sand, mud and level roads with a car which weighed 2,200 pounds with three passengers and luggage.—Harry Bohning.

IOWA-GEORGIA ROUTE

High Shoals, Ga.—Editor Motor Age—I am contemplating a trip from Keokuk, Ia., to Atlanta, Ga., but am ignorant as to the roads and route. I have been told the best way is from Keokuk, Ia., to St. Louis, thence to Evansville, Ind., to Nashville, Tenn., thence to Huntsville, Ala, and then on to Atlanta. Through the Readers' Clearing House, will Motor Age kindly give me the best route?—W. H. Jones.

A good route to follow from Keokuk, Ia., is to go to Quincy, Ill., then east

through Camp Point, Clayton, Mount Sterling, Ripley, Rushville, Frederick, Beardstown, Virginia, Ashland, Springfield, south to St. Louis, Mo., going through Glenarm, Litchfield, Mount Olive, Staunton, Worden, Edwardsville, Marysville, Collinsville, East St. Louis, St. Louis. Thence go east through East St. Louis, Shiloh, Lebanon, Trenton, Breeze, Carlyle, Salem, Flora, Clay City, Noble, Olney, Lawrenceville to Vincennes, and south through Princeton to Evansville, Ind. From this point to Louisville the route lies through Newburg, Yankeetown, Hatfield, Rockport, Grand View, Troy, Don Juan, Leopold, Fredonia, Leavenworth, Wyandotte Cave, Corydon, Breckinridge, Laneville, Edwardsville, New Albany, Louisville. From Louisville to Nashville pass through Fern Creek, Thixton, Mount Washington, Smithville, Balltown, Athertonville, Buffalo, Magnolia, Pikeview, Hardville, Uno, Bear Wallow, Cave City, Glasgow Junction, Bowling Green, Franklin, Mitchell, White House, Millersville, Goodlettsville, Nashville. The balance of the route is through Murfreesboro, Shelbyville, Fayetteville, Huntsville, Scottsboro, Bridgeport, Chattanooga, Lafayette, Rome, Cartersville, Marietta, Atlanta, Ga.

MOTOR CYCLE IGNITION TROUBLE

Appleton, Wis.—Editor Motor Age—I am a subscriber to Motor Age and write asking for information on some ignition trouble I am having. My trouble is with a motor cycle. I receive a larger spark at my timer when the contact is made than I do at the plug. The platinum points also get very dirty, a coating forming on them. There is no short-circuiting in the wiring, and I think it cannot be in the coil, as I just purchased a new one. Will Motor Age tell me what is the trouble?—Earl Finkle.

Either your coil is improperly adjusted, the batteries are too strong or the coil is not of the proper design for the work which it is called upon to perform. If your contact points are not properly adjusted, too much current will pass across them, there will be considerable sparking which tend to burn and pit the contact surfaces, and the spark at the plug will not be as efficient as it should be. If the batteries are too strong, the symptoms will be just the same as above, but the spark at the plug will be good as long as the contacts hold out; too strong a battery may damage the coil, however, by overheating it. If the coil has no condenser, if the insulation of the condenser is pierced or broken down, or if one of its connections is broken, trouble such as yours would be the result.

MAGNETO FOR WINTON

Santa Cruz, Cal.—Editor Motor Age—Kindly reply through the Readers' Clearing House columns on the following:

1—I have a Winton 1906 model K five-passenger car with battery and coil, and would like to ascertain whether any greater benefit of power would be derived from the installation of a magneto system of ignition.

2—If so, would a high or low-tension magneto be advisable, and what make?

3—How and from what particular point on my car could such a magneto be driven?—Subscriber.

1—The fitting of a magneto to your car would greatly improve the efficiency of its operation, but it would not bring about a susceptible increase in power except at higher speeds where a marked improvement would be found. There is no question as to the benefit to be obtained by replacing the battery and coil system with one in which a magneto is included.

2—As to the style and make of magneto, Motor Age would refer you to the advertising columns. Consult the manufacturers of those ignition appliances that impress you as being capable of giving the service which you desire.

3—The timer should be removed and the magneto driven from the gear which drives it. This can be very conveniently done.

USES RAMBLER ON FARM

Audubon, Ia.—Editor Motor Age—I am enclosing herewith an illustration that will be of interest to some of your readers. The owner of this car is A. W. Howey, a farmer living near this place. This shows one of the many uses to which he places his Rambler car. The complete weight of the hogs and crate is 1,040 pounds. Mr. Howey also has racks which he places on the running boards for taking chickens to market. The majority of cars purchased in this community for this year have been bought by farmers.—E. S. Van Gorder.

A USEFUL CHART

Detroit, Mich.—Editor Motor Age—I am enclosing a chart herewith—Fig. 1—which will be of interest in that it furnishes a means of rapidly solving four problems, namely, the revolutions of the crankshaft at any speed of the car with any gear ratio and wheel diameter, or it will show the gear ratio necessary to obtain a certain speed with any crankshaft speed.

The solution of four problems will explain the chart. Problem 1—Given the miles per hour, gear ratio, and tire sizes, find the revolutions of a crankshaft per minute. To solve this select the miles per hour on the left-hand margin. For illustration, suppose the car is travelling at 80 miles per hour. From the figure 80, move right to the intersection of the gear ratio lines, which we can designate 1.5. From this point move up to the tire size, which is 34 inches. From this point move right to the margin where the revolutions of the crankshaft speed per minute are shown and which in this case will be 1,200 revolutions.

Problem 2—Given the crankshaft revolutions per minute, the tire diameters, and miles per hour, find the gear ratio. Supposing the motor is turning over at 1,000 revolutions per minute, that 42-inch tires are used, and the car is travelling at 50 miles per hour. Start left from the 1,000 on the right margin until the intersection of the 42-inch tire size line. From this point go up to the intersection of the 50 mile-per-hour horizontal line. The intersection of this line also cuts the gear ratio 2.7 line, which is the gear ratio employed.

For problem 3, given crankshaft revolutions per minute, size of tires, and gear ratio, in order to find miles per hour proceed as follows: Go left from crankshaft speed—say 1,000 revolutions per minute—to tire size—say 28-inch. From this point go up or down to intersection of gear ratio line—say 1.5. From this point of intersection go left to miles per hour.

In the solution of problem 4, given crankshaft speed in revolutions per minute, miles per hour, and gear ratio, the tire sizes may be obtained by going left from the crankshaft speed to the intersection of the gear ratio line and thence up or down to the miles per hour, which point will mark the intersection of the required tire diameter.—F. H. Trego.

FIG. 2—A. W. HOWEY USING HIS CAR FOR FARM WORK

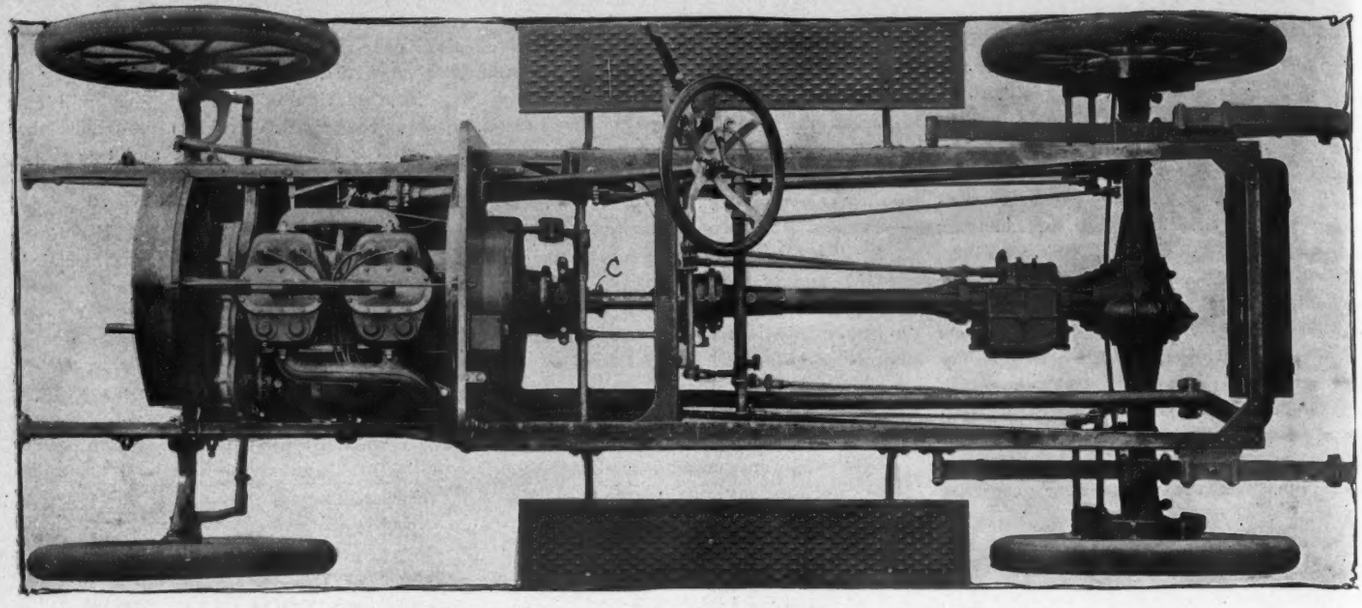


FIG. 1—MOON MODEL 30 FOR 1911 SHOWS MANY REFINEMENTS IN DETAILS

Three Moon Models For 1911 Show

AS in the 1910 season, the Moon line 1911 will comprise three chassis models with four-cylinder four-cycle water-cooled motors, including a model 30 having a 30-horsepower T-type motor, a model 45, with a 45-horsepower valve-in-the-head motor, and a special roadster model having a 35-horsepower valve-in-the-head motor in a model 30 chassis. Either of the two first mentioned models may be equipped with a most comprehensive line of body designs, including touring cars, limousines, roadsters, toy-tonneau, fore-doors, coupes and torpedos.

Although there are no radical changes in the Moon cars for 1911, many improvements or refinements are to be found on them which add to the efficiency of the product and to the comfort and convenience of passengers. In the model 30, for instance, by re-designing, the weight of the motor complete has been reduced 72 pounds. It is claimed a considerable increase in power has been obtained by enlarging the valve opening from 1⅞ inch to 2 inches and increasing the lift about 1-16 inch. Roller valve lifters are used in place of the mushroom type and this in addition to the change in contour of the cam is an improvement in the reduction of noise. Instead of the plain spur gears previously used in the engine, helical gears are now employed; and considerable change is to be found in the lubrication system. In place of the expanding band clutch used in 1910, the model 30 cars are now fitted with a regular multiple-disk type of the same design as has been used in the higher-priced Moon models for the past 5 years. Slight improvements are to be found in the brake design which greatly add to their efficiency; an improved steering gear of the worm-and-gear type replaces the gear-and-sector type formerly fitted. The wheelbase has been lengthened 4 inches. In addition to the introduction of torpedo and

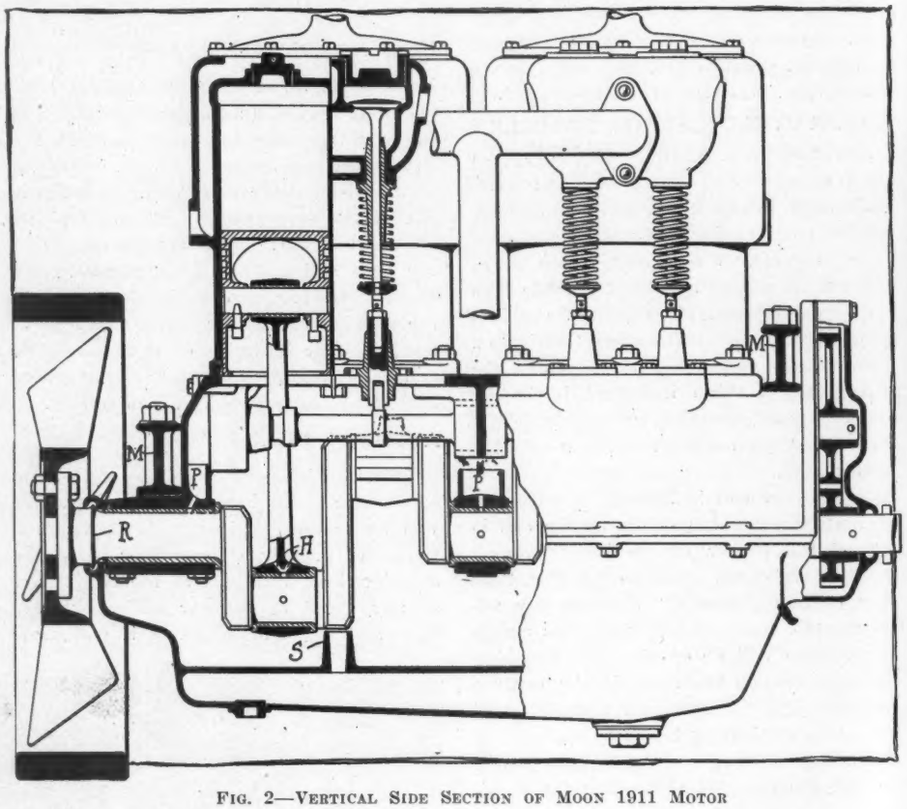


FIG. 2—VERTICAL SIDE SECTION OF MOON 1911 MOTOR

fore-door bodies, the added 4 inches in wheelbase makes possible a roomier tonneau, and wider doors, which feature will be greatly appreciated by users of the new models of Moon cars.

Driving Magneto and Water Pump

The most noticeable improvement in the 45 model, is the simplified method of driving the magneto and water pump. These are located at right angles to the crankshaft and now drive off a single gear on the vertical section of the camshaft. In the lubrication system the force-feed oiler has been removed from the dash to a position at the left rear end of the motor crankcase under the exhaust pipe where its operation will in nowise be affected by conditions of the climate. It now is operated by inclosed spiral gears and shafting in communication with the rear end of the overhand camshaft. The exhaust manifold also has been remodeled so as to leave fewer bends and angles to impede the progress of the exhaust gases; a notable change is to be found in the method of drive and rear-spring suspension. Three-quarter scroll elliptic springs are now used at the rear instead of com-

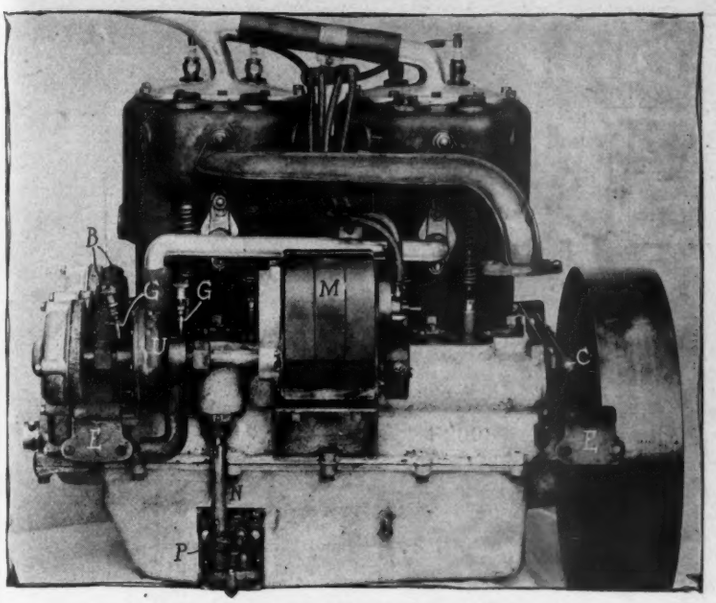


FIG. 3—MAGNETO SIDE OF MOON MODEL 30

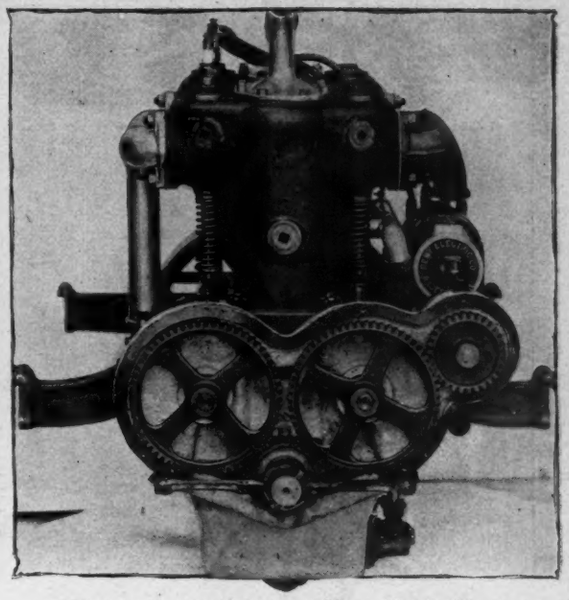


FIG. 4—TIMING GEARS OF MOON MODEL 30

Numerous Detail Improvements

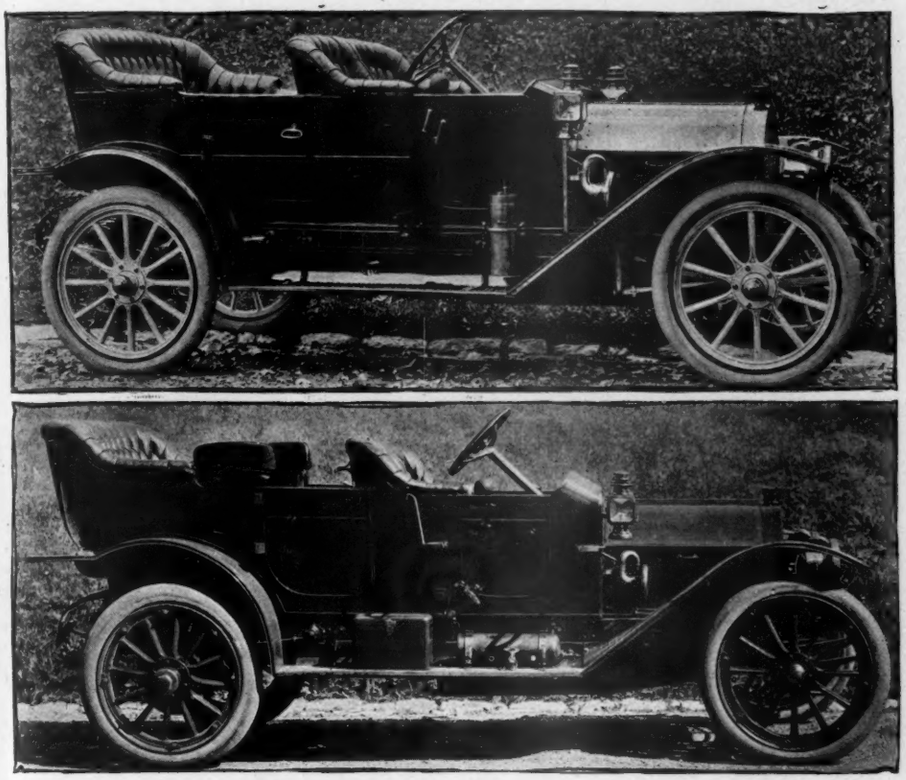


FIG. 5—TWO FORE-DOOR BODY DESIGNS ON 1911 MOON CARS

plete elliptics; and the drive to the frame is directly through the springs, doing away entirely with the drive rods and familiar V-type ball-and-socket construction which was so long a Moon characteristic. The muffler is no longer carried under the rear of the frame, but now extends longitudinally of it on the left hand side, and a dust shield occupies its place. The touring car bodies have been given 2 inches more room in the tonneau and the tendency in design has been a modification of both a straight line and a convex type. Fore-door and torpedo bodies will be featured on the new models.

Features of Moon 30

As for the difference in the Moon models, the model 30 is a strong favorite, being a moderate-priced car with a simple and up-to-date 4¼ by 5-inch motor, multiple-disk clutch, shaft-drive with the propellershaft inclosed in a torsion tube, a three-speed selective gearset in unit with the semi-floating rear axle, a modern pressed steel frame resting on three-quarter scroll elliptic springs in the rear, an I-beam front axle, adjustable worm-and-gear steering mechanism, 34-inch wheels and 114-inch wheelbase.

The model 45 is a higher-priced product, splendidly finished, which differs generally from the 30, in that the motor, gearset and rear axle are separate units, and the car has the advantages of being larger and heavier in construction. The characteristic model 45 valve-in-the-head, 4¾ by 5-inch Moon motor, with its overhead camshaft, furnishes the power in this model, and transmits it through the multiple-disk clutch attached to the flywheel and a selective sliding gearset that rests with the motor on a subframe. A propellershaft with two universal joints is employed between the gearset and the cambered floating rear axle. The rest of the frame and running-gear design is similiar to that of the model 30 except that the wheels are 36 inches in diameter and the wheelbase 121 inches.

The general layout of the model 30 chassis is shown in Fig. 1 and the external details of the motor construction are more plainly visible in Figs. 3 and 4. Attention is called to the absence of inaccessible parphernalia around the motor, the desirable position of the steering connection link behind the rear axle, the durable pressed steel running board and the upswept rear portion of the frame, this frame by the way, being also narrowed in front to obtain a short turning radius. It also is interesting to note the generous width of the side members of the frame throughout the greatest portion of its length, the simplicity, directness and symmetry of all control, rods, and of brake, gearset and clutch connections.

Study of the Motor

Many details of the model 30 motor, which is suspended directly from the main frame on two I-beam drop forged cross members, are very clearly shown in the sectional mechanical drawing Fig. 2. The

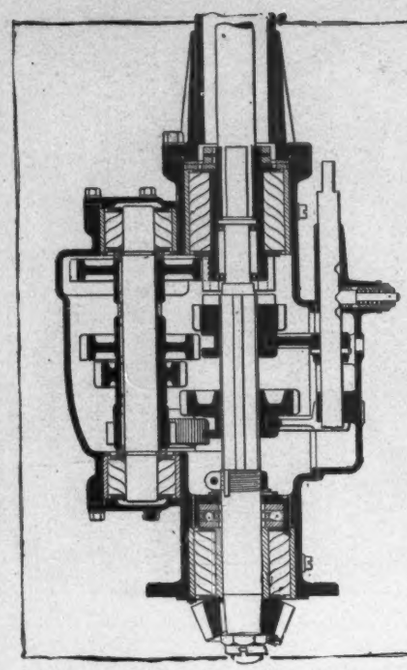


FIG. 6—MOON 30 GEARSET DESIGN

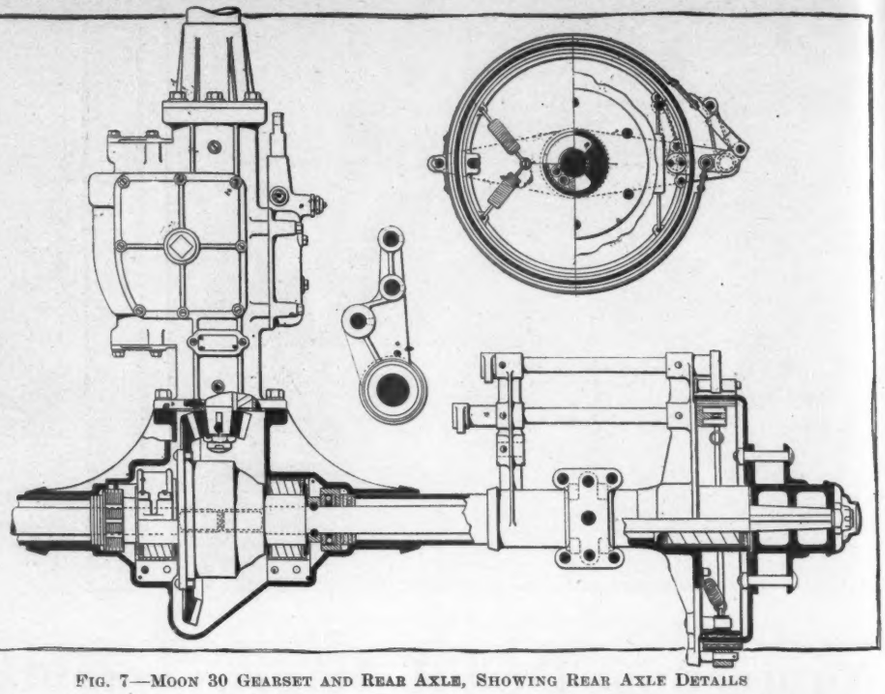


FIG. 7—MOON 30 GEARSET AND REAR AXLE, SHOWING REAR AXLE DETAILS

cylinders are cast in pairs with integral waterjackets and bolted to a cast aluminum crankcase which is divided horizontally into an upper and lower half on a line with the crankshaft. The valves are on opposite sides, have removable valve guides, of the adjustable type and driven from separate camshafts inclosed within the crankcase. The camshafts have three bearings each, the cams are forged integrally and gears which drive them are thoroughly inclosed at the forward end of the motor. As shown in the section of the rear cylinder of this drawing each piston has four eccentric rings above the piston pin, which is doubly securely anchored therein. A phosphor bronze bushing is employed at the upper end of the connecting rod and the lower connecting rod bearings are split horizontally, lined with Parson's white bronze, and the lower half is held in place by two bolts. Attention is called to the method of attaching the motor crankcase to the I-beam cross members M at either end of the motor. There are two bolts at each end which extend to the base of the crankshaft bearing. The crankshaft is a solid drop forging supported on three bearings, which are independent of the lower detachable portion of the crankcase.

Features of the lubrication system, which is of the circulating principle, are shown clearly in this drawing. The lower portion of the crankcase is subdivided horizontally, the upper division, containing splash compartments into which the ends of the connecting rods dip, and the lower division being simply a reservoir where the excess oil accumulates to be strained and re-circulated. The oil pump P Fig. 3 is of the gear type on the outside of the crankcase and driven by means of a vertical shaft and bevel gears from the exhaust camshaft. This pump draws the oil from the reservoir and forces it into the upper division. When the oil in this division reaches a certain level it overflows into standpipes, one of which is shown at S Fig. 2, and returned to the reservoir to be strained and again circulated.

Oil System Discussed

The dipping of the connecting rods into the oil in this upper division causes a spray or mist of oil to be present in all parts of the case while the motor is in operation; large oil pockets P are provided over each crankshaft bearing are designed to catch this spray, and being almost continually filled a copious supply of oil is fed by gravity to these bearings at all times. Holes H are drilled on top of the lower connecting rod bearings so that the oil which runs down the rods keeps the lower end bearings well supplied while all other mechanisms in the case and cylinders are enveloped in this mist of oil. Four oil grooves may be seen at the bottom of each piston for distributing the oil over the cylinder walls; and leakage of the lubricant from the rear end of the motor is prevented by the oil ring R cut on the crankshaft which throws the lubricant by centrifugal force into a circular groove

SPECIFICATIONS OF 1911 MODEL 30

Cylinders—Four, T-type, cast in pairs.
Bore—4¼ inches; stroke, 5 inches.
Crankcase—Cast aluminum, divided horizontally.
Crankshaft—Three-bearing type.
Cooling—Water, circulated by pump.
Ignition—Dual, Remy magneto.
Lubrication—Circulating splash system.
Clutch—Multiple disk type.
Drive—Shaft, in torsion-tube.
Gearset—Selective gear, 3 forward speeds.
Rear axle—Floating, bevel-gear type.
Frame—Pressed steel, channel section.
Steering Gear—Worm and gear type.
Wheels—34 inches.
Wheelbase—114 inches.

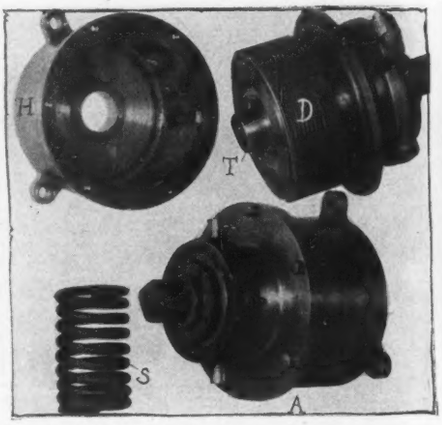


FIG. 8—FEATURES OF THE 1911 MOON MULTIPLE-DISK CLUTCH

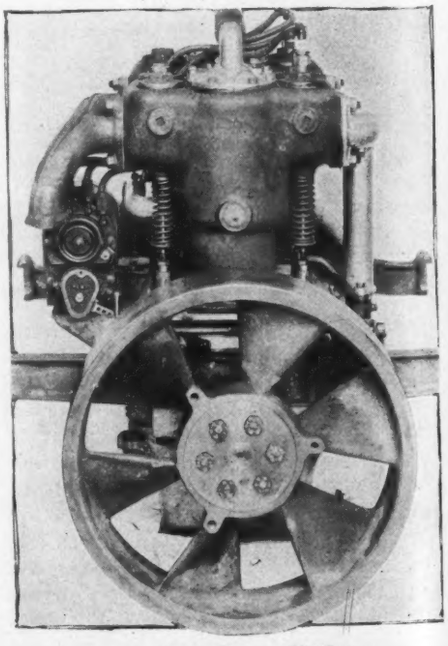


FIG. 9—REAR END OF 30 MOTOR

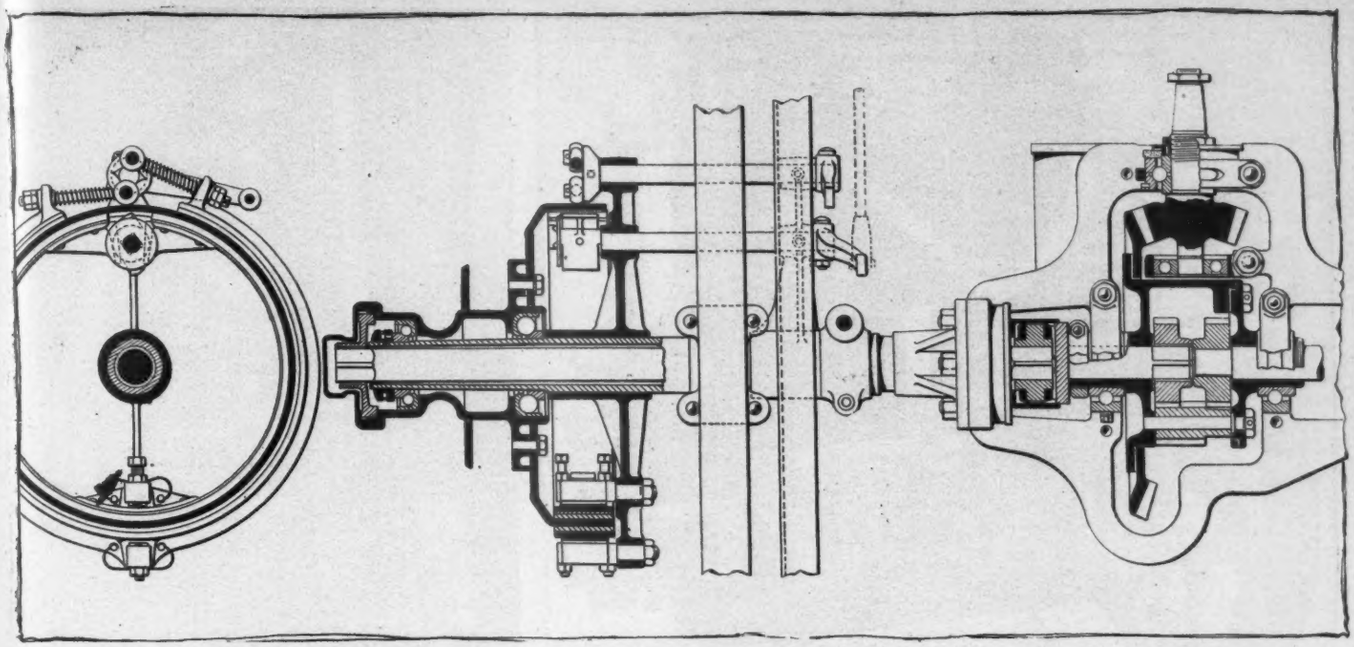


FIG. 10—MECHANICAL DRAWING SHOWING FEATURES OF MOON MODEL 45 REAR AXLE CONSTRUCTION

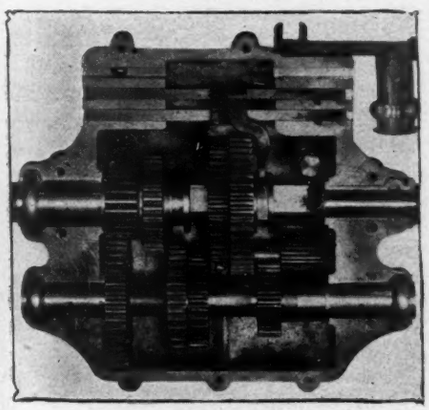


FIG. 11—MOON GEARSET MODEL 45 IS A SELECTIVE DESIGN

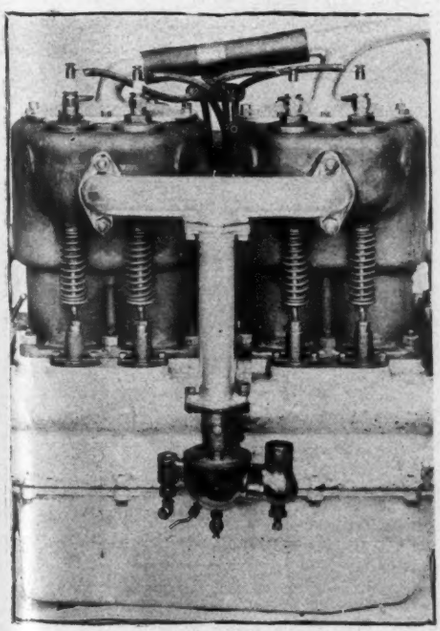


FIG. 12—RIGHT SIDE OF 30 MOTOR

surrounding it from which it drains back into the crankcase proper. The capacity of the reservoir is 3 gallons.

Cooling is by means of a forced water circulation maintained by a bronze water pump of the centrifugal type. This pump U, Fig. 3, is supported upon a bracket cast integrally with the crankcase and is driven by shaft and a gear enclosed with and driven off the left camshaft gear. A vertical round-tube radiator is a feature of this system; and the water manifolds are of the utmost simplicity, the return sections on the top of the cylinders being cast integrally with the plates that cover almost the entire top portion of the cylinder jackets and being separated between the cylinder pairs so that individual assembly or disassembly is facilitated. No fan is required.

Jump-spark ignition is employed with dry cells and a Remy magneto used in dual combination with a single-unit coil and a single set of spark plugs. The magneto M Fig. 3, rests on a strong bracket which is a part of the crankcase and is driven by the shaft which passes through and drives the water pump. Its position is convenient in that it may be readily inspected and the ignition cables leading to the spark plugs are comparatively short and direct. The new arrangement of the control rods over the rear support of the engine is shown at C. Before passing from this illustration it might be well to note: The combination petcock and grease cups G over the bearings of the water pump shaft which prevent leakage at these points; to the close proximity of the two bolts B which secure the motor to the cross members E of the frame, and to the slotted tubular connection N of the oil-pump shaft, which renders the lowering of the lower crankcase compartment a simple operation. A glance at Figs 10 and 13 will emphasize the simplicity and symmetry of the arrangement of the motor accessories.

Multiple-Disk Clutch Featured

In the Fig. 8 the multiple-disk clutch employed on the Moon cars is shown, its feature being the bronze housing H, the steel disks D, of which there are forty-seven for the model 30 and fifty-two for the larger car, and the heavy coil spring 3 which fits over the end of the clutch shaft T. The clutch assembly complete is shown at A, the bolts which secure it to the flywheel passing through the lugs. On the extension shaft between the clutch and propellershaft a coupling C Fig. 1 is provided which permits convenient removal of the clutch if desired. A very heavy and thoroughly inclosed universal joint is employed at the forward end of the propellershaft and the torsion tube which incloses it is secured to a heavy cross member of the frame by a ball-and-socket joint. The gearset located between the rear end of the torsion tube and the rear axle housing is small and compact, has its main and countershaft in the same horizontal plain, and these shafts are supported on Hyatt roller bearings with a

SPECIFICATIONS OF 1911 MODEL 45

Cylinders — Four, valve-in-the-head type, pairs.
Bore—4¾ inches; stroke, 5 inches.
Crankcase—Cast aluminum, divided horizontally.
Crankshaft—Three-bearing type.
Cooling—Water, circulated by pump.
Ignition—Dual Bosch magneto system.
Lubrication—Force feed, mechanical oiler.
Clutch—Multiple disk.
Gearset—Selective gear, four forward speeds.
Drive—Shaft, two universal joints.
Rear axle—Floating, cambered.
Frame—Pressed steel.
Steering gear—Worm and gear type.
Wheels—36 inches.
Wheelbase—121 inches.

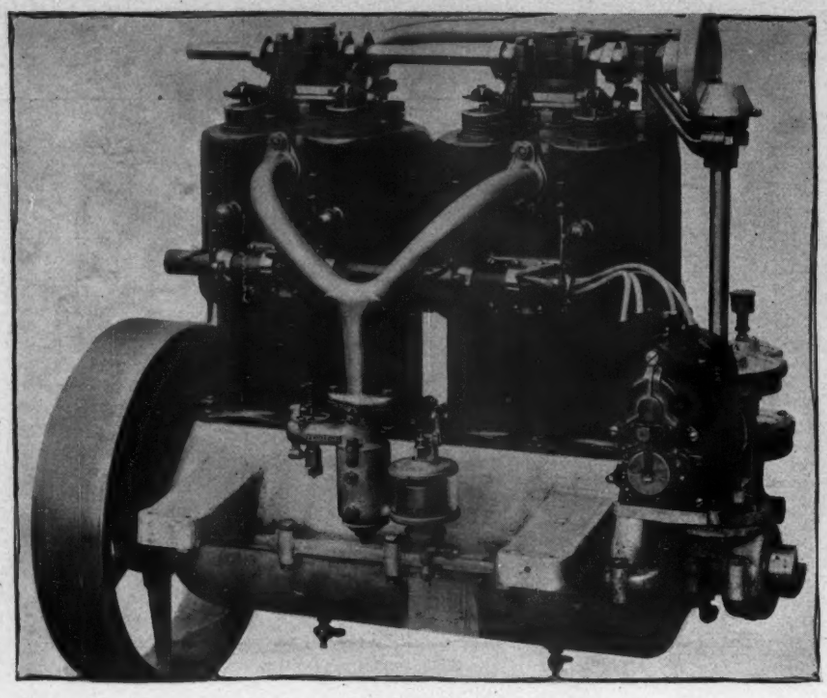


FIG. 13—MOON MOTOR FOR SPECIAL ROADSTER

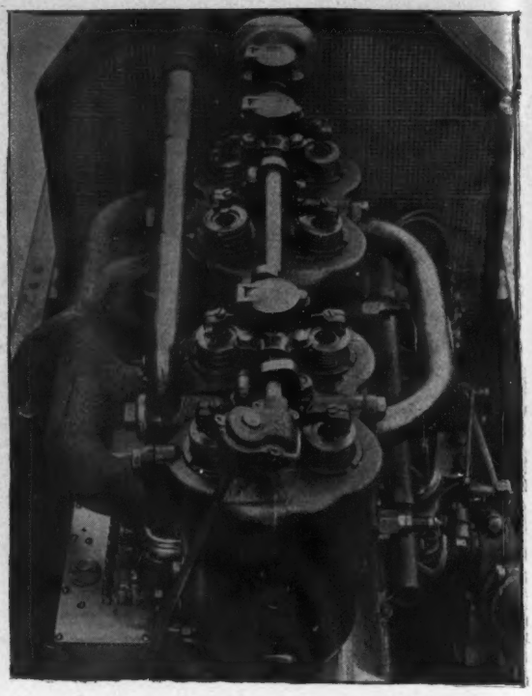


FIG. 14—MOTOR ON MOON MODEL 45

ball thrust bearing behind the pinion-bearing of the main shaft. Details of this gearset construction are shown in Fig. 6. Likewise the details of the rear-axle construction are shown in Fig. 7. It is of the full floating type with the transverse driving shaft supported on Hyatt roller bearings with ball bearings provided for end thrust.

Space will not permit of a detail description of the model 45, but a glance at Fig. 14 will show many interesting details of the motor construction. The gearset used on this car is shown in Fig. 11 and from Fig. 10 details of the rear axle construction may be readily obtained. The motor of the special roadster shown in Fig. 13 is almost identical in design with the model 45 except for a slight difference in the arrangement of the gears and shaft which drives the magneto and water pump, and perhaps one or two other minor features.

1911 FLENTJE SHOCK ABSORBER

Ernest Flentje, Cambridge, Mass., already has announced the changes made in his hydraulic recoil preventer or shock absorber for 1911. To those who are familiar with this shock preventer it will suffice to say that in the 1911 type a larger needle valve for regulating the flow of glycerine from one side of the piston to the other is fitted, and an improved packing box for the stuffing box is also added. By increasing the size of the needle valve it is claimed that 40 per cent greater radius of adjustment is obtained.

To those not familiar with the Flentje shock absorber, Fig. 17 will show its general makeup, in which A is the cylinder containing a mixture of glycerine and H is the piston working within this cylinder. The cylinder attaches by a bracket, G, to the axle and the piston by a bracket, O, to the frame.

The piston is the important factor in the shock absorber. In order to understand the action of the piston it must be understood that glycerine can pass from the space above the piston to that beneath it through four large openings, E, only two of which appear in the illustration, and also through small recoil holes, one of which appears. The piston valve I is shown raised so that the glycerine is free to flow through the holes E. As soon as the piston begins to rise the part H will come in contact with the valve I, thereby closing the openings E, at the same time opening the passages L, so that after a certain amount of rise in the piston has taken place the transfer of the glycerine from above the piston to beneath it is slower and that only the opening L is available for the purpose. The opening L is controlled by the valve rod M, which at its upper end carries an adjusting nut, N.

THE FORSE SPEEDOMETER

The Forse Mfg. Co., Anderson, Ind., manufactures the Forse speedometer which is illustrated in Figs. 15 and 16 and is of the centrifugal force type. A section of it shows the vertical shaft S, which is driven from the front wheel of the car. This shaft carries a circular plate, F, pinned in position and on which rests four ½-inch steel balls, B. Over these balls is a cup-shaped piece, A, the inner surface of which forms a parabolic curve. As the shaft S rotates there is a tendency to drive the balls B outward, which movement of these balls raises the cup A. This upward movement is transmitted to an arm, G, which is best shown in Fig 16, this arm being pivoted at P and has a longer arm, G1, which, through a link, L, and another linkage, L1, transmits direct to the finger

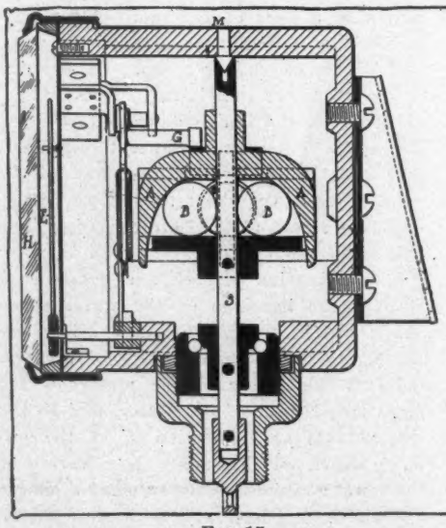


FIG. 15

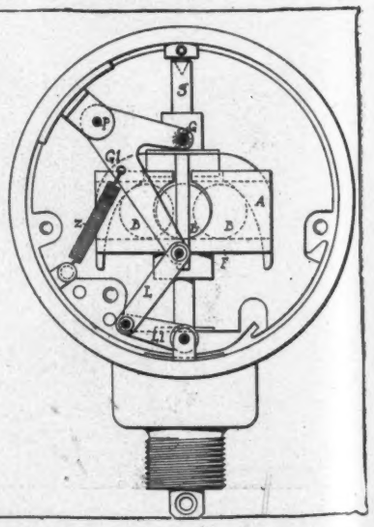


FIG. 16

or pointer E, which works over the dial and indicates the speed. A spring, Z, brings the arms G and G1 back to normal position as soon as the cup A is lowered, because of reduction in the rotation of the shaft S. It will be seen there is no spring action connected with this speedometer other than the spring Z for returning the pointer to zero. In operation the balls B are constantly rotating between the seating F and the cup A, the same as balls in a ball race. Owing to this peculiar construction, the manufacturer claims a special non-fluttering indicator in this instrument.

IMPROVED BANKER WINDSHIELD

For 1911 the Banker Wind Shield Co., Pittsburg, Pa., has had on the market for some time its new model of windshields. This company has solved the problem of giving a clear vision shield with no metal strips across the glass to obstruct the driver's view, but yet at the same time the possibility of rain or dust entering between the halves of the shield has been obviated by setting the upper fold one-quarter inch lower and forward of the lower fold. The principal change in this 1911 model is the improved automatic ball ratchet hinge, which allows the upuper half of the shield to be placed at any angle, such as upright, half fold, or complete double fold over the hood, or any angle from 22½ to 90 degrees. The double fold over the hood is obtained by means of an expander placed inside the telescoping rods and fitted at the end with a wheel that tightens and releases the tension as desired.

HUPP-YEATS ELECTRIC

The Hupp-Yeats Electric Car Co., Detroit, Mich., is at present marketing its Hupp-Yeats electric, which is a new vehicle on the American market. This vehicle uses an Exide battery, Westinghouse motor, and is characterized by careful workmanship in its different parts. All parts of the machine are made specially for this car, jigs being made use of throughout. A standard Exide battery is used. It consists of three trays of 11 MV Hycap cells. There are twenty-four cells in all, which is ample for the 28-volt motor. The entire battery is located under the hood, which is of the Renault type, hinged to the dash.

The Westinghouse motor is of four-pole, series-wound type. It is somewhat larger and heavier than is customarily used in vehicles of this size, but these few extra pounds of weight are mostly in the windings. This means that the car will travel farther than usual on a given current consumption and also that the motor will produce an unusually heavy starting torque or pull the car through heavy going without overheating.

The motor drives the rear wheels directly, through a pair of bevel gears which give a 10-to-1 reduction of rotating

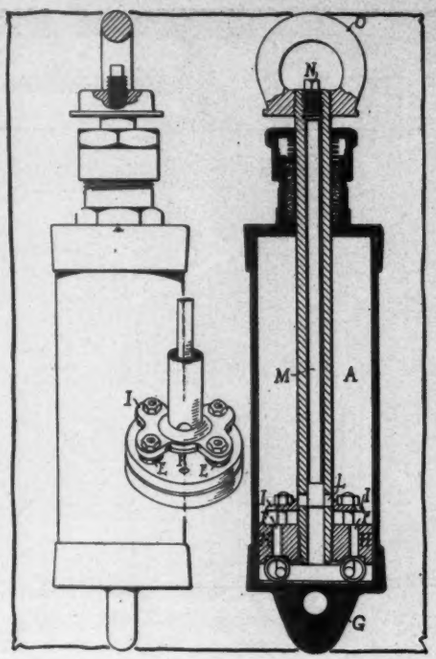


FIG. 17—FLENTJE SHOCK ABSORBER

speed. The rear end of the motor case is bolted fast to and closes the front of the rear axle housing, giving an enclosed dust-proof drive without universal joints. Imported annular ball bearings are used throughout the motor and rear axle. The differential is of the spur pinion type. The wheel hubs are broached square and secured to the axle shafts by nut and cotter. These shafts are 1⅜-inch in diameter, of high-carbon steel, oil treated, their inner ends are squared into the differential gears, while the wheel ends are mounted on large annular ball bearings.

The front axle is characterized by an unusually large drop. It is of the inverted Lemoine type, which type naturally brings the axle well below the knuckle, giving low center of gravity. The I-beam forged bed is 2 inches high and 1½ inches wide, with fillets and additional width wherever needed. It is forged from high-carbon steel and oil treated.

Spherical seated ball thrust bearings are used in the knuckles. The wheel spindles are 3½ per cent nickle steel, oil treated.

The front springs are of the semi-elliptic type, 28 inches long by 2 inches wide, perched 18 inches from their front ends. All spring eyes are bushed with phosphor bronze, and work on hardened pins provided with concealed oil cups. Spring clips are large diameter, with fine thread, and are finished with long nuts.

The frame is of high-carbon pressed steel, its midsection of 3 by 1½ inch of ⅛-inch stock. A 9-inch drop at the rear provides plenty of rear axle clearance and allows of bringing the floor of the body to within 17 inches of the ground.

For steering a conventional tiller is used, with driver at left. Wheel knuckles are cross connected in front of the axle. Two pairs of expanding brakes act on the rear wheel drums. Both are pedal operated. One pair has a free pedal and the other is ratchet retained. The brake shoes are cam expanded and are faced with Thermoid. They are enclosed.

The controller is of continuous-torque, drum type. It gives four forward speeds and one reverse. The high speed is about 20 miles per hour, and the average running speed is from 10 to 12 miles per hour.

The body is roomy, providing seats for five passengers, two facing forward and the others toward the rear. The fenders are of metal and the running boards are of aluminum. Hub caps are of aluminum. The wheelbase is 86 inches. The tread is 50 inches. Thirty-two by 3½-inch pneumatic tires are used as the standard equipment. A special ampere-hour meter is used, showing even to the most inexperienced the state of the battery charge.

FIG. 18—THE HUPP-YEATS ELECTRIC WITH RENAULT HOOD

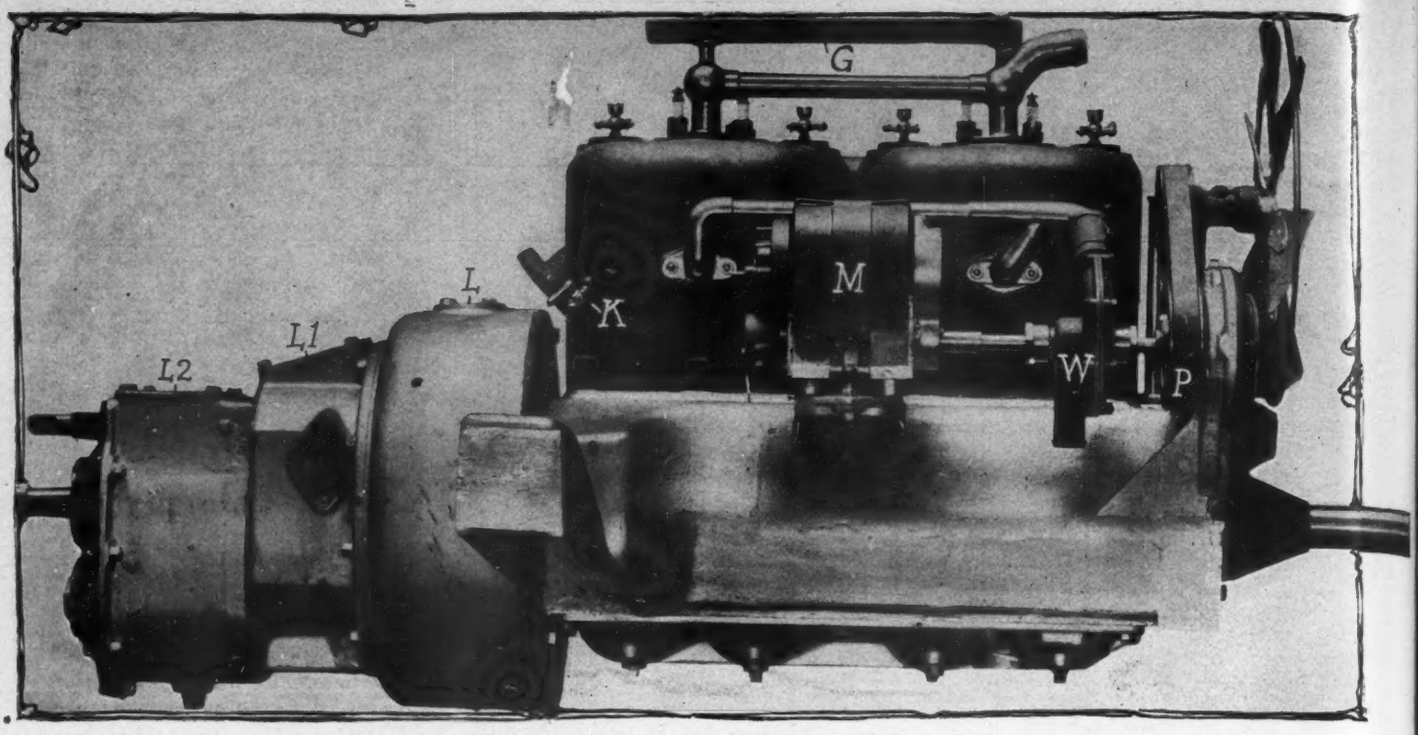


FIG. 1—THE UNIT POWER PLANT FITTED ON THE 1911 COLE CARS

Cole 30 Models for 1911 Complete

IN making its appearance for the 1911 season the Cole 30, manufactured by the Cole Motor Car Co., Indianapolis, Ind., is found to retain all of its characteristic features with such changes and improvements which have been found possible to give further luxury, beauty and easy riding qualities. The 1911 Cole car is built in four body styles, including a new fore-door touring car, the fore-doors of which may be readily removed if desired; a new toy tonneau, and the open touring and roadster styles of 1910. These bodies will be fitted to a single chassis. The 1911 model is larger and stronger, more powerful and of refined appearance. The wheelbase is increased from 108 to 115 inches. A double-drop hot-riveted frame has been adopted, permitting the use of lower tonneau doors, giving easier access to the tonneau, lowering the center of gravity, bringing about a straight-line drive and improving the body design. It is of exceptionally broad cross section throughout the central portion of the side members and it is narrowed in front of the dash to reduce the turning radius. A full floating rear axle, with a gear ratio of 3½ to 1, replaces the semi-floating type of a 4 to 1 ratio. Tires 34 by 4 inches on Firestone demountable rims are substituted for the 3½-inch tires of 1910. The elliptic rear springs have given way to three-quarter scroll elliptics and radius rods are eliminated. Brakes are 2 inches larger in diameter, so that they now measure 2½ by 12 inches, and all brake rods are between the side members of the frame, to improve outward appearance.

Cylinders are Larger

The cylinder dimensions of the motor have been enlarged from 4 by 4 inches to 4¼-inch bore and 4½-inch stroke, for which from 30 to 36 horsepower is claimed. Forced water circulation replaces the thermo-syphon system, and a three-point suspension principle has been adopted in preference to the four-point for the support of the motor. In the oiling system the pump is now on the outside of the case, a new oil sight feed is conveniently located near the left forward end of the motor, and improvements are to be found in the lower crankcase construction. The entire valve mechanism of the new motor is inclosed; brass water and inlet piping of simpler design replaces the aluminum piping heretofore employed, and the exhaust pipe also is simpler and larger. A cellular-type vertical-tube radiator is fitted, which is attached to the frame through trunnions. Ignition cables are protected from the motor by a specially-designed wooden support. The arrangement of the carbureter control rods has been simplified and made more substantial; and an improved design of Schebler carbureter is fitted. Even the cut-out pedal has received attention and now is designed so that the cutout may be mechanically held open. The muffler has been moved forward to increase the comfort of the passengers. Improved clutch adjustments are provided, and grease cups are fitted to all spring shackles and other outboard bearings.

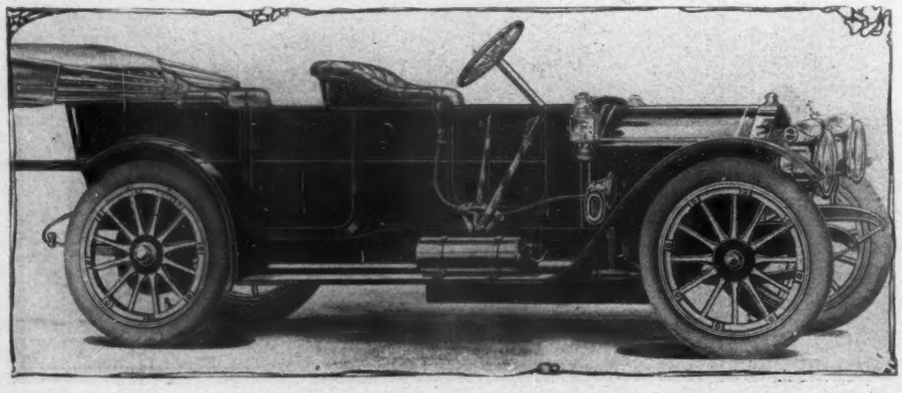


FIG. 2—NEW FORE-DOOR TOURING BODY ON 1911 COLE 30 CHASSIS

Simplicity of Design

The simplicity of design and construction, and accessible arrangement of the sundry equipment of the unit power plant, are shown in Figs. 1 and 6. The motor is a four-cylinder four-cycle, with cylinders cast in pairs and mounted on an aluminum crankcase, which practically is a one-piece construction except for a detachable lower plate containing splash basins for the oiling system. This lower plate is removable for inspection or adjustment of the engine bearings. The power plant is supported in front on a dropped channel cross member of the frame, and behind directly from the

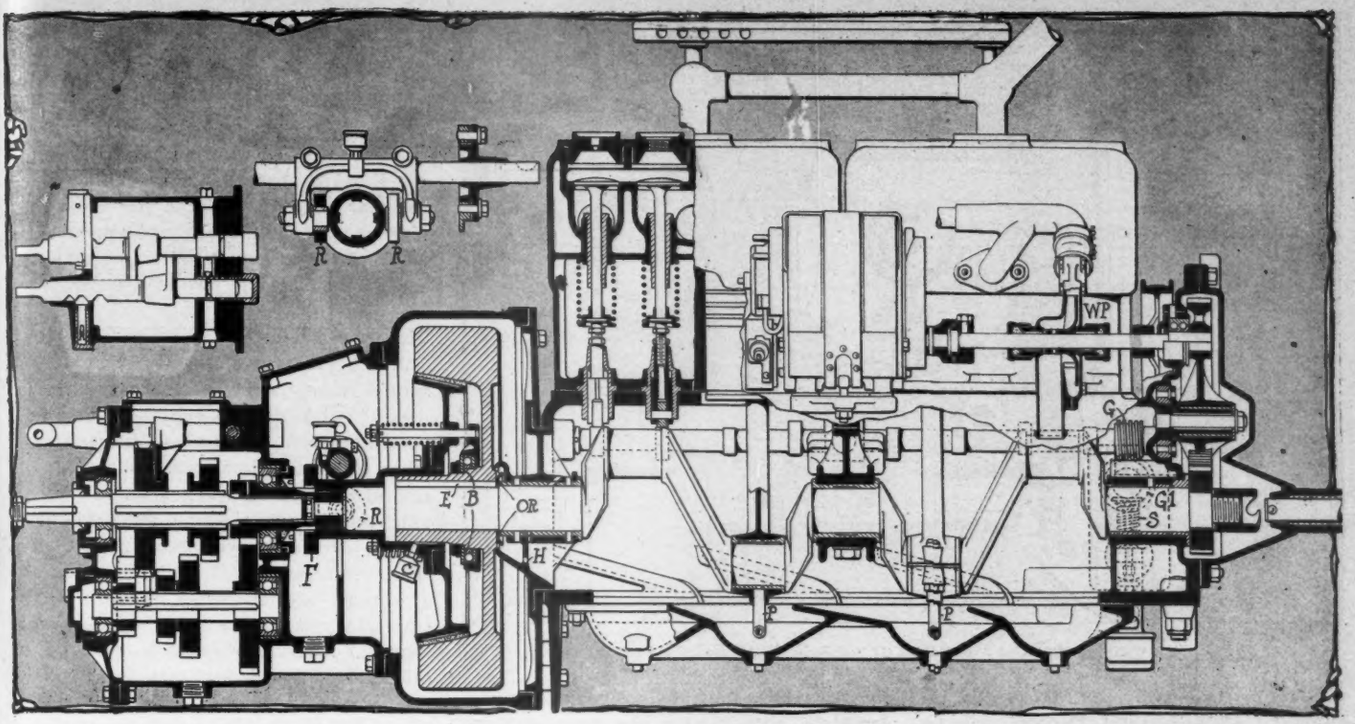


FIG. 3—SECTIONAL DRAWING OF 1911 COLE 30 POWER PLANT

Showing Many Notable Refinements

side members of the frame through two large legs cast integral with the rear end of the crankcase. The flywheel housing is bolted directly to a flange at the rear end of the case, and the clutch-operating mechanisms and gearset are inclosed in a case which is bolted to the flywheel housing. Thus the unit construction of the power plant is brought about. In Fig. 6 is shown a view of the left side of the power plant. The engine gears in front are thoroughly inclosed and receive adequate lubrication from the splash in the crankcase. The cover of the engine gearcase is removable for their inspection and cast integral with the upper edge of the cover is a support for the adjustable fan bracket. The valves of the motor are all on the left side, though hidden from dust and dirt and incidentally from view behind the plates which may be readily removed by loosening the wing nuts in the center of them. They all are driven from a single camshaft contained within the crankcase, and are equipped with adjustable pushrods. At the forward end of the case the piston oil pump is located with the sight feed directly above it. Just behind the oil pump is the oil reservoir, which has a capacity of 6 pints; a large filler cap covers the opening into this reservoir. Attention is called to the simple and direct intake and exhaust pipe connections and the accessibility of all parts.

Cooling and Ignition

Turning to a view of the right side of the motor, illustrated in Fig. 1, interesting features of the cooling and ignition systems are shown. The fan belt pulley P, the water pump W and the magneto M all are driven by a single shaft from one gear, which is thoroughly enclosed. A simple dual Remy ignition system is employed on this motor, with dry cells provided to facilitate starting. Spark plugs are located over the intake valves, so as to be swept and cleansed by the incoming gases, and the wooden insulating guide G for the high-tension ignition cables is clearly shown. The magneto is secured to a strong bracket cast integral with the crankcase, and may be readily removed by loosening the metal strap which holds it in place. Priming cups are fitted over the exhaust valves and petcocks K, one of which is clearly shown at the extreme lower portion of the waterjacket on the rear cylinder, are conveniently located so that the waterjackets may be easily drained for cleaning purposes or to prevent freezing in the winter time. Observation plates L, L1 and L2 are provided at the top of the flywheel, clutch-operating mechanism and gearing housings, respectively, for the convenient inspection and lubrication of these parts when required.

A sectional drawing of the power plant showing many interesting details of the motor construction is shown in Fig. 3. In the oiling system, for instance, a worm gear G on the camshaft drives another gear G1, indicated by dotted lines, which is connected to a shaft that pierces the side of the crankcase. On the outer end of this shaft is a cam or eccentric which, in connection with the spiral spring, works the piston of the oil pump up and down and forces the oil from the reservoir through the sight feed and an external lead to the upper central portion of the crankcase.

Splash lubrication is maintained within the crankcase, with pockets over each main bearing adapted to catch the oil, and holes are drilled at the bottom of these pockets so that the oil may be fed by gravity to the bearings. The lower detachable portion of the crankcase design is very clearly shown in this drawing. It is arranged so that a generous supply of oil

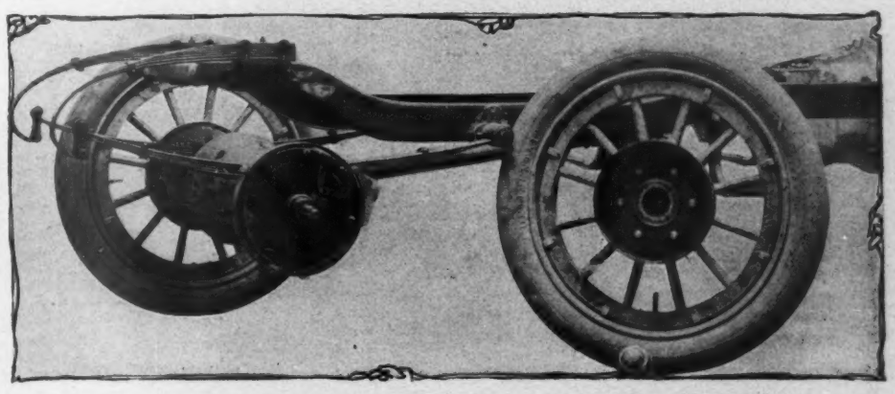


FIG. 4—SHOWING REAR END CONSTRUCTION OF 1911 COLE 30 CHASSIS

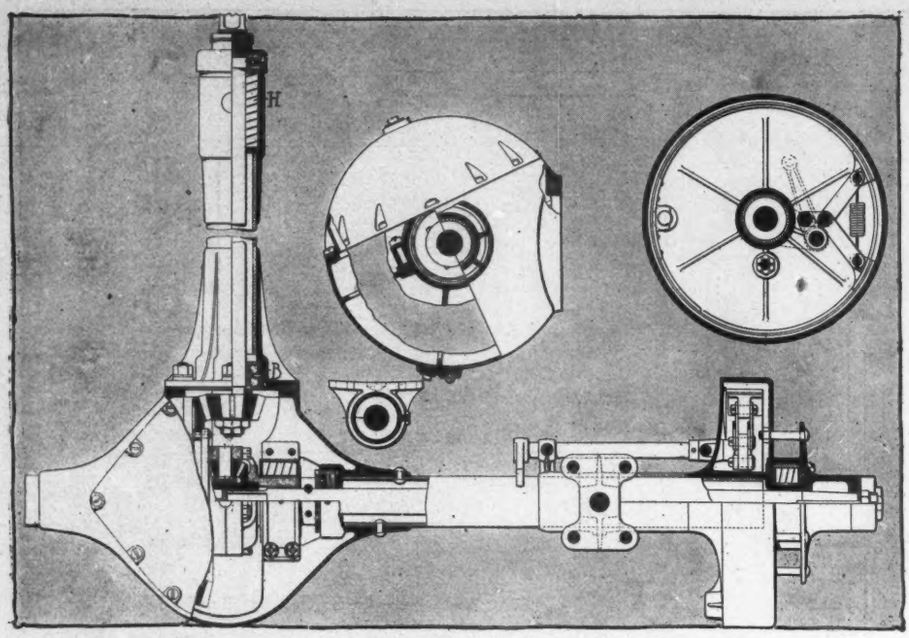


FIG. 5—SHOWING INTERESTING DETAILS OF COLE 30 REAR END CONSTRUCTION

always is present, regardless of the incline up or down which the car may be traveling, and with this construction it is impossible on ascending or descending a hill for either the front or rear cylinders to get too much oil and the cylinders at the opposite end of the motor run dry. A scoop P is fitted to the lower end of each connecting rod which is adapted to sweep down into the basins of the lower portion of the crankcase and force the lubricant to the lower connecting rod bearings.

The camshaft of this motor is a drop forging with integral cams, and is supported in the crankcase on three plain phosphor bronze bearings. The adjustable push rods, the removable valve guides, in fact, the entire valve mechanisms are clearly exposed in the rear cylinder on the drawing. In the next cylinder, to-

driver's seat at the right side.

construction is indicated, there being three eccentric rings above the tubular steel piston pin, and the piston pin is anchored in the piston, while the upper end of the connecting rod has a phosphor bronze bushing. The water pump WP, which is of the centrifugal type, also is indicated in this drawing opposite the forward cylinder.

Passing to the rear end of the motor, a ring OR is found on the crankshaft which is designed to prevent oil from leaking at this point. This ring is adapted to throw off the oil by centrifugal force into a circular groove, from which it drains down through the hole H and back into the crankcase. Proceeding to the clutch, a ball thrust bearing B is provided between the flywheel and clutch spider, which eliminates the end thrust which otherwise might be brought upon the crankshaft bearings. The clutch spider has a large plain bearing on the end of the crankshaft which is lubricated by means of a compression grease cup C, and the attachment of the flywheel to the end of the crankshaft is by means of a long square key E. The clutch is thrown out by means of two hardened steel bronze bushed rollers R which bear against a flange F on the rear end of the clutch sleeve. A side view of the clutch yoke and the arrangement of the rollers R therein is shown in a separate drawing just above the clutch and flywheel housing.

Three-speed Gearset

Just behind the clutch the compact and simple three-speed selective gearset is indicated with its two shafts in the same vertical plane, annular ball bearings and other interesting features. The transmission of power from the gearset to the rear axle is through a single universal joint and a driveshaft inclosed in a torsion tube, the front end of which is secured to a channel section cross member of the frame by means of a large ball-and-socket joint. A mechanical drawing, showing details of a floating rear axle construction employed may be seen in Fig. 5. The front end of the driveshaft is supported by a Hyatt roller and ball thrust bearing and a double annular ball bearing is fitted at the rear end. The large bevel driving gear and the rear wheels as well are also carried on Hyatt roller bearings and ball thrust bearings are employed. Two sets of brakes are provided, both acting on the rear wheel drums, the external service brake operated by a foot pedal, and the internal emergency brake by a side lever which also disengages the clutch. The front axle of this car is an I-beam drop forging with adjustable ball-bearing wheels and steering yoke. The weight of the car is 2,500 pounds; there is 10½ inches clearance between the axles and the ground; and steering gear is a worm and sector type of conventional design. Control of the car is conventional, with the drivers sent on right side of car.

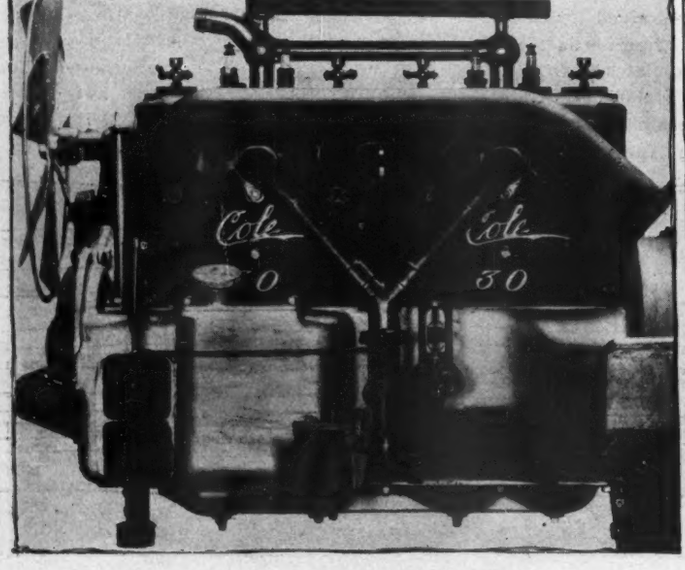


FIG. 6—LEFT SIDE OF 1911 COLE 30 MOTOR

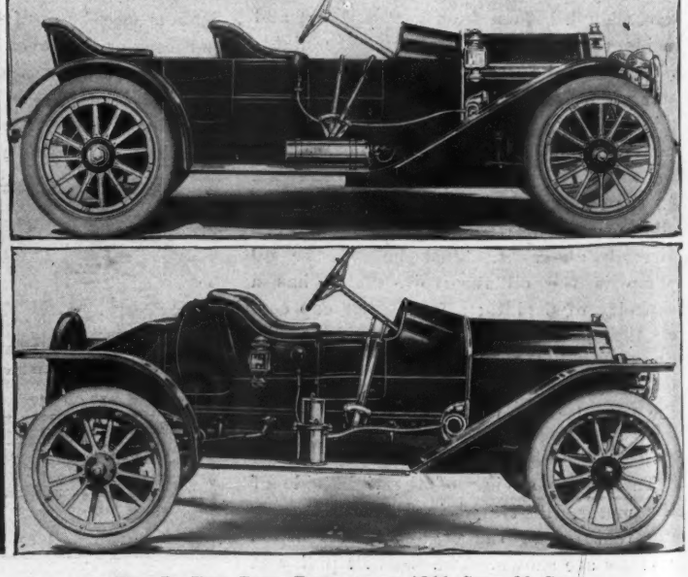


FIG. 7—TWO BODY DESIGNS OF 1911 COLE 30 CARS

Development Briefs

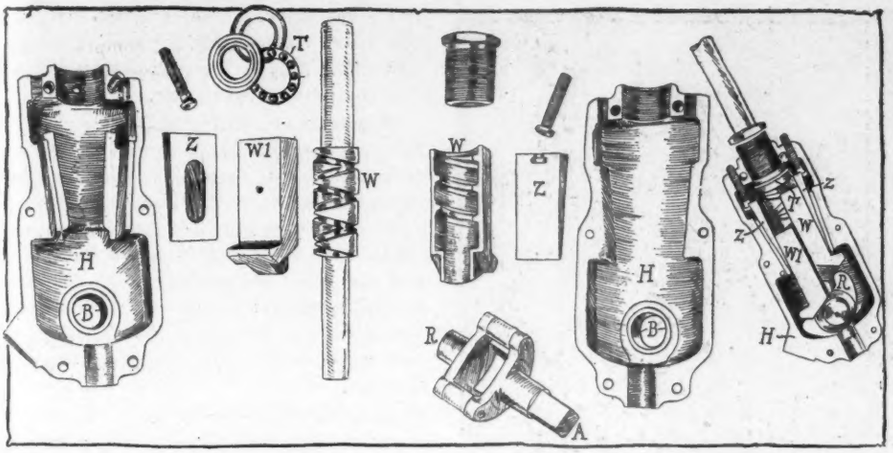


FIG. 1—ASSEMBLY DITWILER STEERING GEAR

FIG. 2—DITWILER STEERING GEAR

Ditwiler Steering Gear

THE Ditwiler Mfg. Co., Galion, Ohio, manufactures a novel steering gear which has been designated the Ditwiler and which, as illustrated in Figs. 1 and 2, is one of the screw-wedge-lever type. Generally speaking, this steering gear consists of a double screw, W, having a right and also a left-hand thread. The right-hand thread operates in conjuction with the block W, the left-hand thread with the block W1. These blocks at their lower ends bear upon a rocker arm, R, to the axis A, of which the radius rod of the steering gear attaches. Turning the steering wheel to the right lowers the block W, raising the other one, W1, and turning the steering wheel to the left produces the opposite result. Downward or upward action of these blocks has a corresponding effect on the rocker arm R.

The different parts entering into the makeup of this steering gear appear in Fig. 1, in which the steering column C is shown with the right and left-hand thread W cut upon it. The blocks W and W1, which mesh with these threads, are shown, as is the rocker arm R, with its rollers for bearing up on the blocks W and W1. The housing containing this steering gear is a malleable iron one made in halves, H. These halves are made with bronze bushings, B, forming a bearing for the axis A of the rocker arm. A noted feature in conjunction with this steering gear is the employment of two wedges, Z, used for adjustment purposes. These wedges are fitted between the housing and the blocks W and W1, so that as the blocks wear the wedges can be lowered, retaining the desired adjustment. The third adjustment in this steering gear is the nut nut, which bears upon the ball thrust bearing T, this bearing coming between the shoulder on the screw and the housing. It should not be overlooked that all these adjustments are made from the outside of the steering gear housing. The column carrying the steering wheel is hollow, to take tubes or rods for the spark and throttle control. The lower end of the column extends through the central opening in the rocker arm, as shown in Fig. 1. A bracket, not shown in the illustration, is used for attaching this steering gear to the framework of the car.

Connecticut Car Lock

The Connecticut Telephone and Electric Co., Meriden, Conn., is manufacturing a lock to prevent the moving of a motor car when at the curb. This lock, as shown in Fig. 2, is intended to fit around the ratchet S, so that the emergency brake lever L cannot be released, thereby insuring the safety of the car. The detail of the lock shows it to be a standard one made from a solid block of brass and machined out to receive the mechanism, which is of the ball-bearing, pin-tumbler design. The link part E, which fits over the ratchet, is wedged shape at W so as to fit in the ratchet teeth. The lock is adjustable, thereby making it universal for practically 95 per cent of the cars. This adjustment consists in the link which can be pushed into the lock a variety of distances as indicated by the serration R on one arm of it.

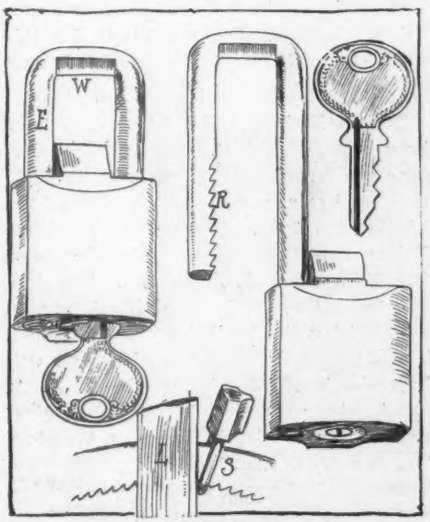


FIG. 2—CONNECTICUT CAR LOCK

This concern also manufactures the Connecticut shock absorber, Fig. 3, which is a somewhat unique device consisting of a three-faced cam, C, having the cam parts 1, 2 and 3, as indicated. This cam works within an enclosure formed by the three sets of leaf springs, S, there being fiber facings inside of the springs so as to eliminate any wear between them and the cams. The complete case containing these springs and cam is packed with non-fluid oil.

The detail construction shows that the cam is attached to one of the brackets of the absorber, whereas the three springs S are carried on the other bracket. The cam is held rigidly against rotation. The three springs S are also rigidly located in the other part of the housing, so that as the two attaching arms come together the cam forces the springs out, this spring pressure being the shock absorbing feature. hTe ends of the attaching brackets are fitted with removable bronze bushings and anti-friction thrust washers with retaining cup washers.

Bumper on Rear of Car

Emil Grossman Co., New York, has departed from the beaten path of fitting bumpers only at the front of a car and shows a conventional standard swivel action bumper placed across the rear of a car. In this position the valve of the bumper is chiefly to protect this portion of the body as well as the lamp.

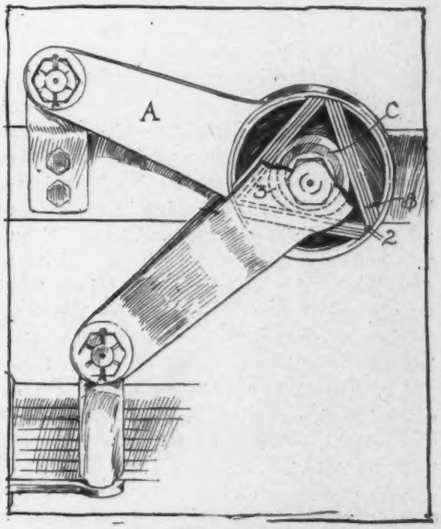


FIG. 3—CONNECTICUT SHOCK ABSORBER

From the Four Winds

CANADIAN BOY SCOUTS GIVEN RIDE IN AN E-M-F

ANOTHER TOUR—The Manitowoc members of the Manitowoc County A. A. made a sociability tour to Two Rivers, Wis., on September 13, being entertained at a banquet by the Two Rivers members.

Detroit Show Dates—The Detroit Automobile Dealers' Association, at a meeting held last week, decided to hold its regular mid-winter show in the Wayne pavilion January 15 to 21. The board of directors will meet within the next 2 weeks to decide on a manager.

Hot Time on Liberty Pike—Residents along the Liberty pike, near Harrisonville, Baltimore county, Md., celebrated the closing of the tollgate and tollhouse at that place and the opening of the road as a state highway by burning a replica of the old tollgate and house. Governor Crothers applied the match which ignited the building and the gate. Fully 2,500 people attended the affair. Congressman J. Fred C. Talbott, who represents the county in congress, and other county officials, were present.

Installs Flying Squadron—The city of Detroit will establish a flying squadron some time during the month of September, which will beat anything in any police department in this country. The squadron will consist of eight patrolmen and two detectives, who will be divided into two squadrons of four patrolmen with a detective in charge, and each squadron will be on duty 12 hours and off 12 hours. Special preparations are being made at the central police station in Detroit to take care of this car and an addition is being built to the station which will enable the men to step from the captain's office into the waiting car, an Oldsmobile, as soon as they receive a call. If a patrolman wants additional help for anything he can call out the flying squadron and it will be on the spot almost instantly.

Texas Meet Booked—The Panhandle Automobile Fair Association is completing arrangements for a series of racing events to be held October 10-12 at Amarillo, Texas. The track is 2½ miles in circumference.

Savannah's Fall Card—The Savannah Automobile Club, of Savannah, Ga., has begun preparations for several endurance runs which will take place shortly. Runs will start from Jacksonville, Augusta, Macon, Atlanta, Charleston and Charlotte and cups will be given for records. The cups will be kept by the winner until a better record is made. Besides these trials the Savannah club is getting ready for an endurance run to Charlotte, N. C., which will take place some time in November. The run will take 2 days. Another run is being planned to Charleston, S. C., but this probably will not come off until next spring.

Ten in Richmond Run—Ten cars have been entered to date in the 5-day endurance run from Washington, D. C., to Richmond and return, under the auspices of the Washington Post. The entries are three Buicks, two Oldsmobiles, two Washingtons, two Maxwells and a Columbia. The date selected is October 14-18, giving 4 running days, with a Sunday layover in Richmond. The distance is 475 miles. The run will be under grade 3 rules of the A. A. A. and has been sanctioned by that organization. The route is via Leesburg, Winchester, Staunton, Charlottesville, Scottsville, Columbia, Richmond, Louisia, Orange, Locust Dale, Culpepper, Warrenton. The night stops will be Staunton, Richmond and Warrenton. The probabilities are that twenty-five cars will compete. In addition to a trophy for each division, there will be a sweepstakes prize.

Milwaukeeans Will Tour—Fifteen members of the Milwaukee Automobile Club have decided to participate in the last sociability tour of the club on Saturday and Sunday, September 23 and 24, to Platteville, Wis., and return. The party will consist of about sixty. The Milwaukee motorists will attend the big rally and meeting of the Southwest Wisconsin A. A. at Platteville, this being the real object of the tour.

Ride for Boy Scouts—As a reward of merit, General Baden-Powell selected from the 3,000 boy scouts encamped on the grounds of the Toronto exposition the Peterborough, Ont., patrol, which was accordingly tendered an ovation on the big day of the fair and given a ride around the grounds in a couple of E-M-F touring cars. The boys, in their Stetsons and khakis, and with their staves in their hands, made a brave show and were cheered at every step.

Jacob's Ladder No. More—A committee comprising members of the Pittsfield and Springfield, Mass., boards of trade and many motorists, have planned to celebrate the wiping out of Jacob's ladder, the terror of motorists for many years, by gathering on the highest point next Saturday for an outing. Motorists throughout New England have been invited and each motorist has been asked to bring along a stone from his section, to be incorporated into a cairn to be built later as a monument to the good roads movement. Already many invitations have been accepted and it is expected that every state in New England as well as New York will be represented at the celebration.

Raise Road Trophy Fund—Great impetus was given the good roads movement in Minnesota Saturday, when Minneapolis dealers donated a sum which, it is believed, will be followed by enough other contributions to secure the most expensive good roads trophy ever offered for the purpose, to be donated to the county through which the coming Tribune reliability tour passes providing the best roads. Subscriptions amounting to $750, or half the amount to be used in the purchase of the prize, were made. The ultimate object of the movement is to secure an appropriation amounting to $25,000,000 for improving roads throughout Minnesota, and to stimulate the work in every county of the state. Inasmuch as Minnesota ranks first in the country as regards natural resources, it is pointed out that its roads should be the best. With the increased volume of touring noticeable in the north-

west, much work can be advantageously done in making the roads in the state of Minnesota better.

Ohio Car on Tour—The Ohio car that ran through the Glidden and Munsey tours now is on a 5,000-mile demonstrating trip in charge of L. A. Prince. It left Cincinnati October 5 and the itinerary calls for the car going through Ohio, Indiana, Illinois, Missouri, Kentucky, Oklahoma, Arkansas, Texas and California.

Plugger on Another Tour—The old Regal Plugger, the Regal Motor Car Co.'s endurance car, arrived in Petersburg, Va., September 15 on the first leg of its 10,000-mile all-southern tour that it is to make through Dixie. Escorted by about half the cars in the city of Norfolk, the Plugger started on its long journey. The rain was pouring when the start was made. After escorting the Plugger to the city limits, the majority of the escort cars dropped out and returned home. A. L. Riggs, of Atlanta, is in charge of the car, with Leo Sherard at the wheel.

Cash Prizes for Farmers—With the hope of securing the co-operation of the farmers throughout Maryland in the matter of keeping the roads in good condition, the Delaware Automobile Association is considering the advisability of offering cash prizes—three in each of the three counties of the state—for the first, second and third best stretches of road in the respective counties, which have been improved by farmers using the King split-log drag. The idea is to have the competition so that each farmer will have to devote his attention only to the roads abutting his property.

St. Louis After 2 Weeks' Show—There is considerable agitation in St. Louis for a 2 weeks' show, instead of the single week which formerly has been the rule. While no definite action yet has been taken, it is believed that the 2 weeks' proposition will have numerous supporters, and most likely will be adopted. The date for the show has not been set. It will either immediately follow the Chicago show, however, or begin the second week of the Chicago exhibit. In case the show is held for 2 weeks, the first week will be devoted to pleasure cars and the second to commercial vehicles.

Marylanders Doing Well—The Automobile Club of Maryland has started in the early fall in an encouraging manner. At the last meeting of the club twenty-two members were taken in, including some of the most prominent business and professional men of the city. The club also held a 3-day social tour as far as Braddock Heights, Frederick county, Md., in which many of the members participated. The first stop was at Frederick, Md., where the tourists had dinner. Among the places visited besides Frederick were Harpers Ferry, Hagerstown, Gettysburg and Littlestown. The visit of the Baltimore motorists was anticipated by the residents of the various places where the cars stopped, and many of the houses and public buildings were decorated with flags and bunting.

Winter Show for Worcester—The Worcester Licensed Automobile Dealers' Association as a result of its recent success in its first outdoor show held at the New England fair at Worcester, Mass., is planning to hold a winter show in the new Worcester Auditorium building now nearing completion and which will have the largest floor space of any hall or building for expositions in New England with the exception of Mechanics' hall, Boston.

Another New England Club—Another club has been added to the present list in Massachusetts, by the forming of the Leominister Automobile Club by motorists of that town last week. Fifty-seven joined the club at the first meeting, and elected these officers for the coming year: President, W. T. Chase; vice-president, A. H. Hall; secretary and treasurer, Murray C. Damon; directors, George P. Jones, Alfred M. Litch, Charles H. Lowe and John Pickering. The club will lease regular quarters near the Leominster town hall, on the main road.

Use Water Gas Oil—Towns and cities wrestling with the problem of dusty streets may find the solution in utilizing water gas oil, which has been found very successful in Wakefield, Mass. Dr. C. L. Sopher, chairman of the light commission, has experimented with this by-product from the lighting plant and now 5 miles of the main highway are regularly sprayed with it, giving satisfactory results. The gas oil is a by-product of the plant's gas set and is worthless for any other purpose. The commission offers it to the highway department for 2 cents a gallon and it costs about 2 cents more to spread it, which is a total expense of about one-third what some municipalities pay for tar and oil preparations. Wakefield is the first town in Massachusetts to use dust-layers, other than water, provided by its own material. Chairman Sopher says any town having a water gas set may do likewise, or that water gas oil may be bought cheaply, as most plants are glad to get rid of it.

Helping Stop Scorching—The Delaware Automobile Club, of Delaware, O., at a recent meeting decided to open a campaign against speeding and recklessness in driving in Delaware county. Signs will be placed at the corporate limits of the city, with the words "City Limits, Slow Down" to warn motorists against speeding.

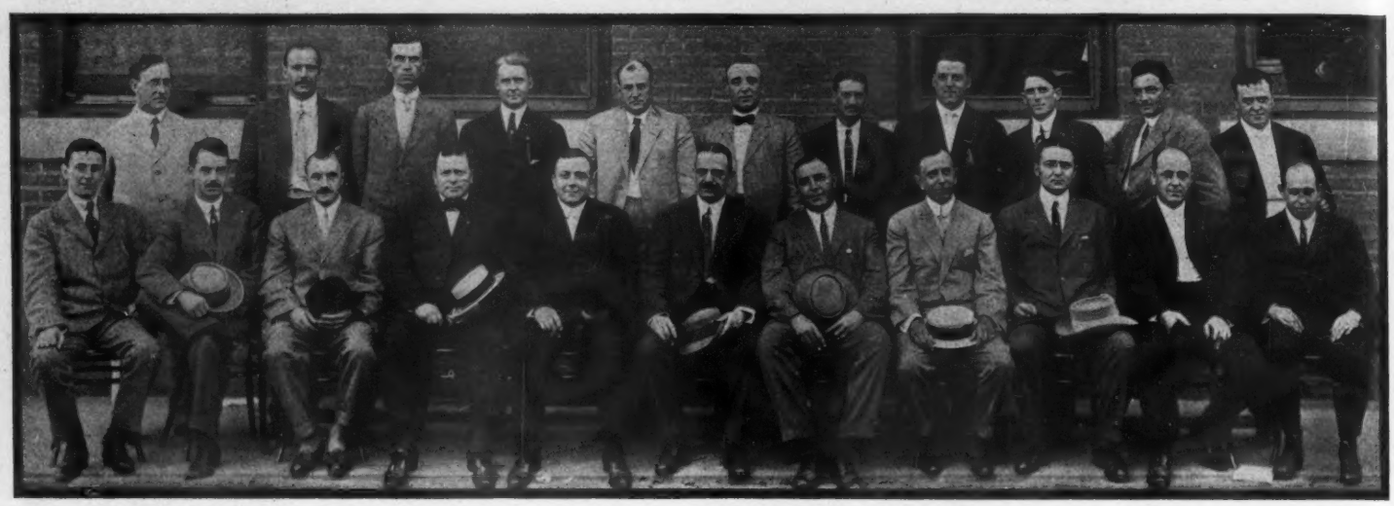
Salary for Chauffeurs—The Walden W. Shaw Livery Co., of Chicago, has decided to pay its taxicab drivers salary instead of commission, starting the men in at $15 a week and jumping them to $17. The drivers also will be uniformed and the company will take out industrial insurance, paying $30 a month sick benefit and $300 in case of death by accident. Only married men will be employed.

New Taxicab Rates—Taxicab rates in Pittsburg are going up. Advances were put into effect September 15, which makes the charge for waiting 10 cents for every 4 minutes, bringing the hour rate up from $1 to $1.50. Instead of 30 cents being charged for the first ½ mile or fraction thereof the rate will now be 50 cents and only four passengers will be carried for this price. An extra rate will be charged for the fifth passenger.

Now a Road-Builders' Show—In addition to the third national good roads convention in St. Louis, there will be held at the same time a road-builders' show at the Coliseum, at which exhibits of road-making machinery and materials and road-oiling appliances will be shown. The local entertainment committee, of which John H. Gundlach is chairman, has prepared a number of forms of entertainment for the delegates. Headquarters for the convention will be in the rooms of the Automobile Club of St. Louis in the Planters' hotel. Sam D. Capen, president of the club, will be the host. Meetings will be held at the Coliseum.

OHIO CAR, DRIVEN BY L. A. PRINCE, ON 5,000-MILE DEMONSTRATION TOUR

Among the Makers and Dealers



FORD BRANCH MANAGERS MEET IN DETROIT

First row, reading from left to right—Perry, London; Harper, New York; Enders, Cincinnati; Leahey, Buffalo; Plaintiff, New York; Fay, Boston; Block, Philadelphia; Weir, Pittsburg; White, Paris; Hule, Atlanta; Doyle, Pittsburg. Top row—McGregor, Walkerville; Fox, Toronto; Malcomsen, Winnipeg; Meade, Kansas City; Hay, Chicago; Rice, Seattle; Skinner, Houston; Graves, Dallas; Hendy, Denver; Gould, Omaha; Anderson, St. Louis. This meeting was held the week of September 5-10, and was a representative gathering.

DATES CHANGED—The Boston American's commercial vehicle contest will be held October 20-21 instead of October 14-15, as first announced.

Tire Plant Almost Ready—Work is being rushed on the new plant of the Kelly-Racine Rubber Co. at Racine, Wis., and the company will be ready for manufacturing about October 20.

Cordner Resigns—E. Q. Cordner, manager of the Chicago Studebaker branch, has tendered his resignation, to take effect October 15. It may be Mr. Cordner will associate himself with a prominent New York concern, although this has not been definitely decided.

Austin with Rutenber—Lewis A. Austin has resigned as secretary and assistant manager of the Autoparts Mfg. Co., of Detroit, and is connected with the Western Motor Co., which makes the Rutenber motor at Logansport and Marion, Ind. Mr. Austin's headquarters will be the Logansport plant.

Will Run Motor Buses—The Columbus Motor Car Transportation Co., of Columbus, O., was incorporated recently, with an authorized capital of $100,000, for the purpose of operating a number of motor buses on the streets of Columbus to fight the Columbus Railway and Light Co., against which corporation a strike has been in progress for some time. It is the intention to operate pay-as-you-enter buses, and they will be manned by the striking carmen. The rate of fare will be eight tickets for a quarter, with transfers, and ten tickets for a quarter without transfers. Three buses were delivered September 17 and more will be placed in operation soon. The incorporators of the company are W. F. Hauck, James T. Liddy, M. J. O'Rourke, N. H. Wilson, George W. Poor, Charles Miller and George W. Bope.

Jameson Gets Moline—W. J. Jameson, who handles the Selden car in Boston, has just taken the Moline on, having secured a large territory for its sale.

Harmer Made Manager—H. B. Harmer has been made manager of the Chicago G & J tire branch, succeeding F. E. Cropley. Harmer formerly was with the Diamond company.

Will Handle Moon—Neff Johnson and Hugh McKean have completed arrangements with the Moon company, of St. Louis, whereby the latter's product is to be handled in Philadelphia territory as soon as a suitable location is found for the salesroom.

Radical Move—Sixteenth and Walnut streets, the heart of fashionable Philadelphia, has been selected as the site for headquarters of the Premier agency. The new location is within the shadow of the Union League, whose reconstructed building is on Fifteenth near Walnut street and in the immediate vicinity are located such clubs as the Racquet, the University, the Rittenhouse, the Markham, the Princeton, the Philadelphia Club and the Automobile Club of Philadelphia. The move is looked upon as a radical one, inasmuch as all former attempts to leave the row have resulted in the experimenters locating further north on Broad street, or, as in the case of the Marmon car, to Sansom street, or the Studebaker, which is on Eighteenth street below Spring Garden. The Motor company's plant is a one-story structure facing 40 feet on Walnut street and 60 feet on Sixteenth street, the entire front being of plate glass and the decorations being green and white.

Needs More Room—The present quarters proving insufficient, the Sweeney Automobile Co., 208 North Broad street, Philadelphia, has leased the building at 206 North Broad street.

Starts Renting Business—The Automobile Rental Co., capital $5,000, of Uniontown, Pa., secured a Pennsylvania charter last week. Its members are C. W. and J. Paul Johnson and Wendell Howard. Mr. Howard will be treasurer of the company.

Taylor Quits Trade—J. A. Taylor, formerly connected with the Philadelphia branch of the Fisk Rubber Co., has withdrawn from the trade and will engage in another line of business. W. D. Payrow, formerly identified with the Fisk factory at Chicopee Falls, Mass., has been appointed to succeed Taylor.

New Parry Agents—During the past 2 weeks the following have secured the agency for Parry cars in their respective sections: Austin Motor Car Co., Austin, Tex.; Auto Exchange, Vicksburg, Miss.; Auto Sales Co., Cleveland, O.; Bennett & Covington, Clio, S. C.; E. L. Cooper, Coates, Kan.; Ed. Dickinson, Shreveport, La.; Ellett & Nilson, Bartow, Fla.; Charles L. Fisk, Middletown, Conn.; Hobart Motor Car Co., Hobart, Okla.; Irving Garage Co., Washington, D. C.; L. S. Mitchell Auto Co., Chattanooga, Tenn. The Parry company also has opened a foreign department, in charge of Claude M. Nankivel, 17 State street, New York city, which department will handle all export business except that

of Mexico and Canada. A recent addition to the Parry sales force is B. S. Walters, formerly of the Pullman Motor Co., of York, Pa., who will travel in the state of Michigan.

Finds Good Location—The W. W. Bennett Motor Car Co. of Pittsburg has selected 5904 Penn avenue, east end, for its future home. It will handle there the Pope-Hartford. Mr. Bennett formerly was manager of the Standard Automobile Co.

West with Firestone—Wiley F. West has been appointed manager of the St. Louis branch of the Firestone Tire and Rubber Co. He is from Atlanta, Ga., where he secured the necessary experience while managing the branch store of another tire company.

Oliver Company Officials—L. W. Schimmel is president of the recently organized Oliver Motor Car Co., of Detroit, which is manufacturing the Oliver commercial car. Paul Weidner is vice-president; F. A. Gies, secretary; R. F. Hartenstein, treasurer, and Charles F. Case, general manager.

Will Sell Polack Tires—The Polack Tire Co. has been incorporated in Maine, to sell the Polack tire, which is manufactured in Walterschaunen, Germany. The tires as sold in this country will be manufactured by the Pennsylvania Rubber Co., at its factory in Jeannette, Pa. The selling organization will maintain an office at 1741 Broadway, New York city, and in Pittsburg, Chicago, Detroit, San Francisco and Los Angeles the branches of the Pennsylvania Rubber Co. will act as distributers in their respective districts. The officers of the newly organized Polack company are: President, Herbert DuPuy; vice-president and general manager, A. Hauschild; treasurer, H. W. DuPuy; secretary, S. G. Louis. The directors are these officers and F. Poppe, Max Polack and C. M. DuPuy.

Savelle Resigns—Manager J. E. Savelle, of the New England Motor Vehicle Co., agent in Boston for the Parry and Rainier cars, has resigned to take charge of a big garage to be built soon in the Hub.

Ships Cars to Manila—The W. H. McIntyre Co., of Auburn, Ind., has just made a shipment of twenty-one cars to Manila, P. I. These cars were specially constructed to meet the climatic and road conditions which prevail there and will be used by Harry Rosenberg, liveryman in Manila, for public service.

Back to Indianapolis—Frank E. Gates, of the Gates-Osborn Mfg. Co., Marshalltown, Ia., states that the business will move to Indianapolis as soon as satisfactory quarters can be obtained in that city. The company manufactures motor car tops. Mr. Gates formerly was in business in Indianapolis, but moved to Iowa about 5 years ago.

Fixing Up Garage—The Terminal Taxicab Co. has purchased the old brewery on Twentieth street, N. W., Washington, D. C., and will remodel it at a cost of $50,000. The old building occupies a frontage of 108 feet and a depth of 141 feet. There will be a garage on all four floors, with an elevator running to each floor. On the main floor there will be, besides the garage proper, a number of wash pits, a showroom, salesroom, and the company's offices. Repair workshops will be located on the second floor. It is the intention of the taxicab company, which has the taxicab privilege at the union station, as well as at several leading hotels, to take the agency for several cars.

Gets More Reo Territory—The Reo company has enlarged the territory of J. M. Linscott, of Boston, who had all Massachusetts, giving him in addition Vermont and New Hampshire.

Blake Will Sell Trucks—A change has been made in handling the Jackson car in Boston, E. P. Blake, who has had it for several years, turning it over to W. H. Bates, of Brockton. Mr. Bates had the Brockton agency for a long time. Mr. Blake is to devote his time to the commercial field with the McIntyre truck.

Has Fine Garage—The Standard Auto Garage Co., which moved recently from West Rayen street, Youngstown, Ohio, to its new building on South Phelps street in that city, now has one of the finest garages in northeastern Ohio outside of Cleveland. It handles the Chalmers and Thomas, and its officers are as follows: President, Power Smith; vice-president, J. Euwer, and secretary and treasurer, Randall Anderson.

Corliss Idea Abandoned—The Corliss Motor Co., organized about 1 year ago with a capital of $1,000,000 by Milwaukee and eastern capitalists, has abandoned the project of building a large plant at Corliss, Wis., to manufacture a six-cylinder car designed by Owen Thomas, of Chicago, formerly of Janesville, Wis. It is stated that efforts to obtain a Selden license failed, making it impossible to proceed. The Corliss concern was closely allied with the Wisconsin Engine Co. of Corliss. This company recently erected several additions

HARTFORD TIRE REPRESENTATIVES IN ANNUAL SESSION

1, J. D. Anderson, president; 2, H. E. Field, vice-president; 3, G. R. Noble, Chicago; 4, S. H. Kellogg, Buffalo; 5, H. C. Severance, Detroit; 6, P. H. Goodall, Cleveland; 7, H. B. McIntosh, Cleveland; 8, C. Towne, Hartford; 9, E. L. Duffee, Philadelphia; 10, E. S. Roe, New York; 11, E. S. Edwards, Connecticut; 12, L. G. Havenor, Boston; 13, M. C. Stokes; 14, H. V. Koons, Philadelphia; 15, W. Brown, New York; 16, A. E. Martel; 17, W. Barnes, Philadelphia; 18, T. McClurg, Cleveland; 19, Charles Clark; 20, H. E. Smith, Chicago; 21, J. R. Hoffman, Philadelphia; 22, E. H. Johansen, Philadelphia; 23, E. H. Fahy, New York; 24, R. M. Barrett, Buffalo; 25, W. H. Reed; 26, Garfield List, Philadelphia; 27, J. J. Tompkins, Detroit, 28, G. D. Niles, Boston; 29, O. S. Johnson, Buffalo; 30, J. P. Krogh, treasurer; 31, P. B. Simmons; 32, A. W. Kirk; 33, W. T. Powell, Chicago; 34, D. W. Pinney; 35, C. B. Whittlesey; 36, E. R. Benson, secretary; 37, H. F. Snyder, New York; 38, F. Kesser; 39, L. Frohock, Boston; 40, A. D. Cruden, New York; 41, James Morgan; 42, G. H. Wright; 43, Charles Langmaid; 44, G. S. Hulongs; 45, A. W. Clark. The meeting was held last week and was attended by all the company's representatives from various branches.

which were to be devoted to the motor car industry. It is understood that the Wisconsin Engine Co. will proceed to build motors for the trade.

Breaks Ground for Plant—Ground has been broken for the new Vulcan gear works at Pontiac, Mich., one of the four new factories which are to be erected there. Work will be rushed to completion.

Will Sell Own Product—Lawrence Moore, formerly connected with the Gear Grinding Machine Co., of Detroit, is now sales manager for the Russel Motor Axle Co., which will handle its sales directly from its own office instead of through Roger B. McMullen, of Chicago.

Steubenville a Bidder—Business men of Steubenville, Ohio, led by A. D. McMillan, secretary of the chamber of commerce of that town, are making desperate efforts to raise enough capital to secure a big motor car factory. The sponsor of this project is W. J. Galerno, of Detroit. A site a short distance above the city on the Ohio river has been picked out and the prospects of raising the $100,000 bonus are considered quite flattering.

New Johns-Manville Branches—Owing to the increase of business in the vicinity of Atlanta, Ga., and Rochester, N. Y., the H. W. Johns-Manville Co. has opened a new office in each of these cities. The Atlanta office is located in the Empire building, in charge of W. F. Johns, who has been traveling this territory for the company for a number of years, and the Rochester office is located at 725 Chamber of Commerce, in charge of H. P. Domine, formerly with the Buffalo branch of the company.

Buys Fort Pitt Plant—The Pittsburg Motor Co. has bought the plant and holdings of the Fort Pitt Motor Co. at New Kensington, Pa., at sheriff's sale for about $25,000. The Fort Pitt company made the Pittsburg Six car and the plant resumed operations September 12 under the new management with twenty-five men employed. The old company had not been making cars since July 1. It is reported that the Pittsburg Motor Co., which has bought quite a line of new machinery for the business, will remove the plant to Copeland Station near Braddock, Pa., about October 1.

Rogers Company Expanding—The Rogers Motor Car Co., of Omaha, which recently began the active manufacturing of motor cars, announces that its plant will be enlarged to a capacity of 5,000 cars annually. The present output of the company is 900 cars a year. A change also is made in the personnel of the company. C. A. Ralston, of Chicago, formerly vice-president, becomes general manager in place of Ralph Rogers, who remains on the board of directors and will be special designer for the company. The increase in the size of the plant will be made immediately. An addition built of brick, three stories high, 300 feet long and 60 feet wide, will be built. Some smaller buildings also will be necessary. The company plans the manufacture of a motor wagon next year as soon as the increased equipment has been installed.

From Buggies to Cars—The Troy Buggy Co., of Troy, O., will enter the motor field and the style of the concern has been changed to that of the Troy Mfg. Co. Several models of motor cars will be turned out.

Overland Change—A new firm has just been organized in Boston known as the Connell & McCone Co., to handle the Overland, formerly sold by the J. M. Linscott Co. Frank F. Wentworth, at one time New Hampshire agent for the Overland, is to be general distributer.

Plant Moved to New York—The Pittsburg Motor Vehicle Co., manufacturer of the Pittsburg line of commercial electric vehicles, has removed its factory and main office from Pittsburg, Pa., to New York city. It is now located in a new and completely equipped concrete plant at Concord avenue and East One Hundred and Forty-third street.

Join Accessory Association—The following-named concerns have been elected to membership in the Motor and Accessory Manufacturers: Edison Storage Battery Co., manufacturer of storage batteries, West Orange, N. J.; McCue Co., manufacturer of axles, bearings, forgings, chassis and chassis parts, Hartford, Conn.; Pfanstiehl Electrical Laboratory, manufacturer of spark coils, magnetos and specialties, North Chicago, Ill.

New Fisk Branches—The Fisk Rubber Co. has recently opened new direct factory branches in Providence, R. I.; Rochester, N. Y., and Oakland, Cal. This makes twenty Fisk branches in different parts of the country, the other cities where they are located being as follows: Boston, Mass.; Springfield, Mass.; New York; Philadelphia, Pa.; Atlanta, Ga.; Buffalo, N. Y.; Cleveland, O.; Detroit, Mich.; Chicago; St. Louis, Mo.; Minneapolis, Minn.; St. Paul, Minn.; Kansas City, Mo.; Denver, Colo.; Seattle, Wash.; Los Angeles, Cal.; San Francisco, Cal. The Fisk company has recently moved into new quarters at 3917-3919 Olive street, St. Louis.

Tire Men Confer—The 3-day conference of the field representatives and branch managers of the Hartford Rubber Works Co. terminated in a dinner at the Shoreham at Morris Cove, New Haven. The men in convention came from all parts of the United States. The Hartford Rubber Works Co. was the first of the tire makers to inaugurate the annual convention idea 15 years ago and it was found from the start that much good was accomplished, so that they have been held yearly ever since. The conference began Thursday forenoon. Those present at the convention, forty-six in number, inspected the factory and conferences were held with the various heads of departments. Dinner was served Thursday and Friday noon in the office dining rooms at the factory. Saturday forenoon the party left for Morris Cove in motor cars.

Gantert Adds Selden—The G. Hilton Gantert Co., 510 North Broad street, Philadelphia, will hereafter represent the Selden in Philadelphia and vicinity, in addition to its regular line, comprising the Ohio and Stearns.

In Business Again—J. Leonard Smith, of Morgantown, W. Va., who recently sold his interest in the Central Automobile Co. of that place, has formed the Standard Automobile Co. there and will handle the Jackson and two other cars.

Placing Imperial Agencies—The Imperial Automobile Co., of Jackson, Mich., reports that it is rapidly closing with dealers for the 1911 output. The J. W. Trump Auto Co., Los Angeles, Cal., closed a contract for the Pacific coast, and has ordered 150 cars. Samuel Davidson, Indianapolis, Ind., has contracted for 150 cars and will act as distributer for the states of Indiana and Kentucky.

Handling S. V. G. Car—The 1911 S. V. G. car, manufactured by the Acme Motor Car Co., of Reading, Pa., made its Philadelphia debut last week. The car is something entirely new. The Philadelphia branch is the Girard Motor Co., whose temporary offices are in the Real Estate Trust building, Broad and Chestnut streets. F. H. Hill, of Wilmington, is manager and Charles A. Oxley sales manager.

Gramm Company Report—The plant of the Gramm Motor Car Co., now located at Bowling Green, O., will be removed to Lima within a few weeks, where it will occupy a concrete plant now about ready. At the annual meeting of the company the directorate was reduced from nine to five in number, the following being elected: A. L. White, M. Oakley, A. E. Aggerter, B. A. Gramm and Frank Lamb. A dividend of 6 per cent was declared, 5 per cent charged off for buildings and 10 per cent for patterns and machinery. A surplus of $140,000 was announced. The company has stock issued to the amount of $200,000.

R. E. Olds President—At the adjourned annual meeting of the Atlas Drop Forge Co. the following board of directors was elected: R. E. Olds, E. F. Peer, J. H. Moores, Harry Haze, M. R. Potter, S. H. Carpenter and R. H. Scott. Later the board of directors, which is the same as last year, elected the following officers: President, R. E. Olds; vice-president, R. H. Scott; secretary-treasurer, S. H. Carpenter. The secretary's report showed the concern to be in a highly prosperous condition, with fine prospects for the future. A great deal of machinery has been added, but the equipment still is insufficient to meet demands. For this reason, a machine shop 40 by 60 feet soon will be added. The present office rooms also will be given over to factory purposes and a new office building will be erected by the company as soon as possible.

The Motor Car Repair Shop

Hints for the Amateur

THERE are a great many garages and repair shops throughout the country in which there are no facilities for conveniently handling dis-assembled or partially assembled motor car parts. It is pitiful to note the extravagant disadvantages that many repairmen have to endure. As an example of an ordinary case, while visiting a fairly good sized garage in a town which boasted one of the largest motor car factories in the country, the writer's attention was attracted to a group of garage employes and others around a motor car from which the body was about to be removed. One attempt already had been made to lift the body from the chassis, but it was found that the gasoline pipe had not been disconnected from the supply tank which was located under the front seat of the body. The body was rather heavy and awkward to get hold of, and the owner or part owner of the establishment who was bossing the job showed an interesting lack of ingenuity and inexperience in directing operations.

There were two pairs of wooden horses in the equipment of the shop, but as these were occupied it was decided to carry the body to a secluded part of the place and deposit it on the floor. When the head workman had succeeded in disconnecting the gasoline pipe from the nipple or connection which extended directly downward from the bottom of the tank for about 6 or 8 inches, each of the six working members of the group chose a grip on the body and at a signal from the boss, applied their strength and the body was raised from the chassis frame. Two of the workmen found a suitable holding place at the rear end of the body, one took hold of the projecting door hinges, the man on the opposite was lifting on the handle of the door-latch, while the two at the front end of the body stood on the running boards and had hold of the brackets which supported the top when in use. Having lifted the body so that it was clear of the frame the group of workmen started to move backward with it. Everything went satisfactorily until the men at

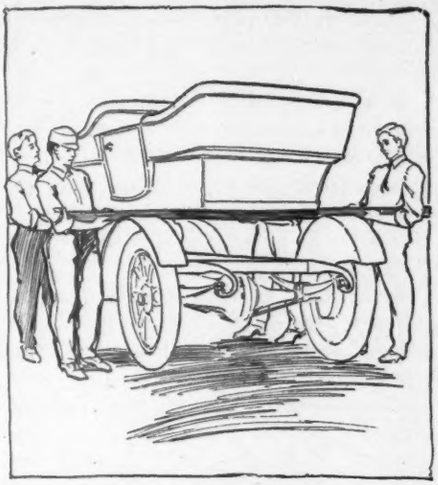


FIG. 1—REMOVING A BODY

the front end came to the rear end of the running boards where it was necessary for them to step down and around the rear fenders, which, by the way, made it temporarily necessary that more help be furnished at this end. The boss then jumped into the breach, and took hold of the end of one of the projections of the body which runs up to the dashboard, and the man on the opposite front end secured holds by which he managed to step down onto the floor and still uphold his portion of the weight. The body again started to move backward and might have been successfully removed had it not been for the fact that the door handle upon which one of the men was lifting broke off, the excessive weight suddenly transferred to the other men on that side, in addition to the rather awkward position occupied by the man holding on the top-bracket, threw the greater part of the strain on the men at the rear and front ends. Although the men bore it well, the projecting front end of the body, held by the boss, gave way, allowing the projection of the gasoline tank to come down on the rear cross-member of the frame or thereabouts, breaking it off and permitting a copious stream of gasoline to be scattered upon the floor. Even had the body been successfully removed this misfortune to the gasoline tank would have occurred eventually for it was intended to set the body directly upon the floor; not even a couple of pieces of wood having been provided to prevent possible crushed fingers. The timely assistance of a couple of observers saved the body rrom being dropped to the floor, and aided in transfering it to the spot selected; after which the workmen were vociferously upbraided by the boss who then retired to his office.

For the benefit of those who may have had similar experiences or might encounter them at some future time Motor Age would suggest that in the absence of more suitable tackle the best and safest method of removing a body from a chassis is to raise one end at a time sufficiently high to insert two long bars of wood 2 by 4 inches in width and thickness and long enough to extend at least a foot beyond the outer edges of the fenders on either side of the car. In this way, as illustrated in Fig. 1, four men can conveniently remove a very heavy body from a chassis with little trouble. In Fig. 2 two trucks are shown which are of simple and cheap construction, and valuable adjuncts to an up-to-date garage equipment. The truck R is made entirely of standard pipe fittings and four standard castors, and T is a cheap but durable wooden structure. These trucks are very handy in transferring motor car bodies about the shop, and when not in use for that purpose may be covered with boards and rolled up alongside a chassis or motor that is being dis-assembled or assembled, and used as a sort of portable work-bench. The stands S, in this illustration are designed to support the front or rear axle of a car while the wheel-bearings or brakes are being adjusted. These should be plentiful, and conveniently distributed about the shop.

A great many accidents have occurred through carelessness in working around a car whose one end was merely supported upon a couple of unstable blocks or jacks.

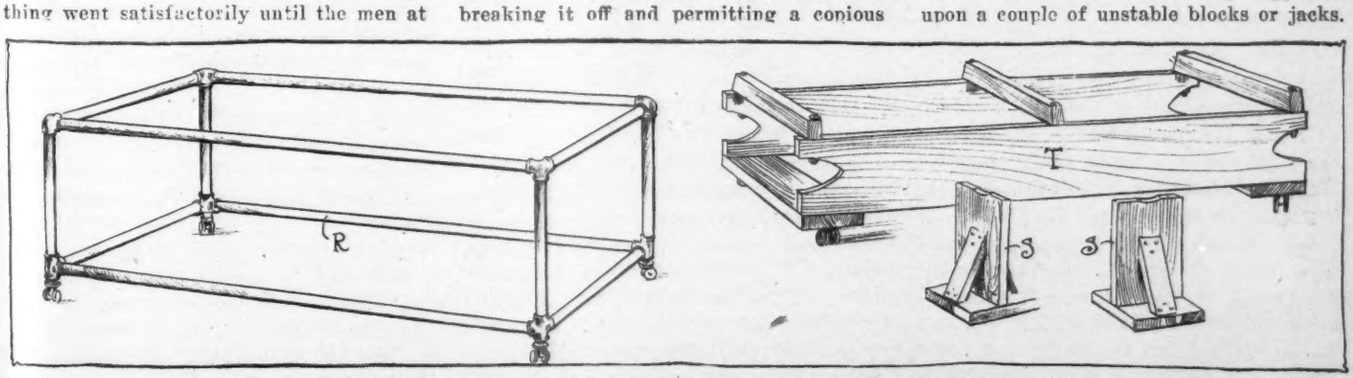


FIG. 2—SOME VALUABLE ADJUNCTS TO UP-TO-DATE GARAGE EQUIPMENT

Brief Business Announcements

GRANTS PASS, ORE.—M. Jordan has established an agency in this city.

Columbus, O.—G. R. Summers and T. E. Hatch have opened a garage and repair shop at 1126 North High street.

St. Louis, Mo.—The Union Electric Co. has opened a garage at Nineteenth and Locust streets for electric trucks.

Utica, N. Y.—The Gunn Motor Car Co. has obtained a permit to erect a concrete car factory at the corner of Bleecker and Oscar streets, 64 by 175, to cost $50,000.

Washington, D. C.—Charles Miller & Brother have secured the agency for the Owen in Washington, D. C., and vicinity and will be located on Fourteenth street.

Paterson, N. J.—The Centre Garage Co. has been incorporated, with a capital of $25,000. The Somerset Garage Co., Peapack, has been incorporated, with a capital of $25,000.

Boston, Mass.—The Castle Square garage, 29-33 Ferdinand street, has been recently opened. It is fireproof and reinforced concrete, with a fully-equipped service department.

Philadelphia, Pa.—The Henry R. Hoopes Co., agent for the Rambler and Crawford, at 1404 Ridge avenue, has opened a repair shop, which will be conducted in connection with the agency business.

Pittsburg, Pa.—A. M. Brown, for some time connected with the sales department of the Hiland Automobile Co., which handles the Peerless line, has accepted the management of the H. O. Harrison, Los Angeles business.

Dayton, O.—The firm of Wentz & Miller has been dissolved, Mr. Miller taking over the business. Mr. Miller has secured a large garage at 227 South Main street and will handle the Jackson, Maxwell and Brush machines.

Minneapolis, Minn.—George B. Gaylord, formerly assistant to the general manager of the Buick Motor Co. at Flint, Mich., will hereafter have charge of the accessories and parts department of the Minneapolis Regal Auto Co.

Dayton, O.—Under the firm name, the Standard Motor Car Co., E. J. DeVille and W. H. Yeazell have opened a salesroom at 25 North Jefferson street, in the heart of the city, and will handle products of the Hudson and Marmon factories.

Bakersfield, Cal.—Plans have been completed for the new Southern garage, which is to be built at the corner of Twenty-fourth and Chester streets. It will be a brick and concrete building, part of it two stories in height, and will cost about $20,000. A feature of the garage will be four concrete fireproof vaults for the safekeeping of cars.

St. Louis, Mo.—The Colonial Automobile Co. has secured the agency for the Warren-Detroit.

Minneapolis, Minn.—W. A. Allen has secured the agency of the Paterson line of motor cars for the coming season.

Des Moines, Ia.—The Means Auto Co. has enlarged its present garage. H. C. Harbach will be associated with the company.

Youngstown, O.—The Kelly Automobile Co. has opened its new garage at 221 Chapel place. Its electrical department will be opened next week.

Minneapolis, Minn.—W. H. Campbell, formerly of the Campbell Motor Co., Wayzata, Minn., has resigned and opened a garage at Lyndale and Twenty-sixth streets.

Chicago—N. H. Miniter, formerly of the Factory Sales Corporation and late of the Eisemann Magneto Co., has become associated with the Stromberg Motor Device Co. as a special factory representative.

Galion, O.—The contract for the erection of the new plant for the Howard Motor Car Co. has been awarded. The plant will consist of several large buildings and it is the intention to have it ready for operation by the first of the year.

New York—The Dakota Stable Co. will alter the three-story stables on the north side of Seventy-fifth street from Broadway to Amsterdam avenue into a garage, at a cost of $12,000. The front will be rebuilt at the first story into show windows.

New York.—Contracts for the erection of the new factory for the Ford Motor Co., at the corner of Jackson and Honeywell avenues, Long Island City, have been given to the International Engineering Co., of this city. The proposed building will be 225 by 75 and of reinforced concrete.

Boston, Mass.—The Autocar service building, at the junction of Beacon street, is to be opened on October 1. A. B. Camner, of the office staff at Ardmore, Pa., will assume charge of this Boston branch. The building is six stories, reinforced concrete, steam-heated and electric-lighted.

San Francisco, Cal.—The absorption of the Moore Motor Supply Co. by the Weinstock-Nichols Co. has been announced. The Weinstock-Nichols Co. has been handling Morgan & Wright tires since its organization. At the head of the enlarged Weinstock-Nichols Co. will be Harris Weinstock, N. Nichols will be vice-president, and Robert Weinstock secretary and treasurer. Ed. C. Mohrig will remain with the company in an executive capacity.

Cincinnati, O.—The Cincinnati Taxicab Co. has increased its capital from $20,000 to $40,000.

Wilmington, Del.—A sales branch of the E-M-F has been established in this city, with E. G. Brown as the manager. Temporary quarters have been located at Second and French streets.

Minneapolis, Minn.—The Royal Auto Co. has added the Empire to its line and will act as distributer for this make in western Wisconsin, Minnesota and North and South Dakota during the coming year.

Trenton, N. J.—Norman P. Druck, who will be in charge of the Stoddard-Dayton branch office here, is having a garage and showroom remodeled and placed in condition at 237 North Broad street and expects to have it ready about October 1.

Columbus, O.—Dr. T. W. Hamilton is building a garage on North Fourth street which will be occupied by a sales agency, the name to be given out later. The plant consists of a frontage of 100 feet on Fourth street and a garage in the rear 60 by 115 feet.

Chillicothe, O.—The Scioto Auto Car Co., recently incorporated, has been organized by the election of the following directors: Fred G. Stroehmann, Henry J. Arbenz, C. A. Fromm, H. C. Ogden, Wheeling R. Enderlin, Robert W. Manly and F. C. Arbenz. Fred G. Stroehmann was elected president, W. R. Enderlin vice-president and F. C. Adams secretary and treasurer.

Indianapolis, Ind.—The Washington Auto Co. has opened its new garage at 842 East Washington street. The garage will be identified with and will maintain the cabs of the Taxi-Transfer Co. The latter company will, about October 15, put into operation in this city a public service of twenty taximeter cabs. The men back of the enterprise are A. M. New, F. H. Bruhn, J. N. Coulter, F. H. Keller, F. J. Wallace.

Trenton, N. J.—The Bath Motor Mfg. Co. will make and deal in gasoline motors, engines, aeroplanes, biplanes, and other machinery; capital $300,000. The incorporators are Peter E. Wurfflein, Theodore G. Kitchin and Leroy W. Skelton, all of this city. The purpose of the corporation is to purchase the Kirkham Motor Co., of Bath, N. Y. In acquiring this plant the corporation also takes over a contract for $200,000 worth of engines for the Kline Kar Co., of York, Pa.; the Atterbury Motor Co., of Buffalo, N. Y., and the new Kirkham Aeroplane Co., of Bath, N. Y. Officers are: President, S. E. Bailey, York, Pa.; vice-president, James A. Kline, York;

secretary, J. C. Shuette, Lancaster; treasurer, George W. Ryan, York, Pa.

Minneapolis, Minn.—P. J. Downes & Co. have secured the agency for the Gleason line of commercial cars in this territory.

Harrisburg, Pa.—A charter has been granted to the Warrington Garage and Machine Works Co., with a capital of $10,000.

St. Louis, Mo.—The Universal storage Battery Co. has moved into new quarters at 1909-11 Locust street, and has installed a manufacturing plant there.

Boston, Mass.—H. M. Doane has opened quarters at 174 Columbus avenue, Boston, for the Essex Automobile Co., of Lynn, Mass., which has the agency for the Warren-Detroit.

Topeka, Kan.—The Frith & Short garage, at 911-13 North Kansas avenue, was sold to R. F. Ginder for $22,000. The building is three stories, pressed buff brick and one of the finest on the north side.

Washington, D. C.—The Overland agency in this city has been changed from the Overland Sales Co. to the Overland Washington Motor Co., of which R. C. Smith is president. New quarters have been established at 829 Fourteenth street, N. W.

Boston, Mass.—The Edgewood garage, at 7 Edgewood street, is the latest addition to the row. The building is two stories, brick, fireproof, containing about 27,000 square feet of floor space. J. Hiram Smith, vice-president of the Reliance Speedometer Co., is the proprietor.

Binghamton, N. Y.—A permit has been granted to Howard Brown, of the Binghamton Motor Car Co., to build a new garage on the west side of Water street. The building will be three stories and basement, 66 by 127, reinforced concrete and red pressed brick, to cost about $10,000.

Washington, D. C.—The Dupont Sales Co. has removed from Thirteenth and G streets, N. W., to 1429 L street, N. W., where it will share the salesroom and garage of Charles E. Myers, the Elmore agent. The Dupont company has been given the Hudson agency, formerly controlled by the Zell Motor Car Co.

Saginaw, Mich.—The Michigan Buick Auto Supply and Garage Co. has completed its organization to do business and has elected the following officers: President, Thomas T. Buick; vice-president, George B. Brooks; second vice-president, Elverton F. Jenks, Detroit; secretary, Fred L. Button; treasurer, George W. Stewart.

Coshocton, O.—Incorporation papers for the Vickers Motor Car Co., of Coshocton, have been drawn up and will be filed soon. The authorized capital will be $100,000 and it is expected to manufacture an air-cooled car designed by Carl B. Vickers. E. H. McMaster will be president; Carl B. Vickers, general manager; H. H. Kline, first vice-president; F. E. Watson, second vice-president, and William C. Myers, sales manager. The plant is located in the old cigar factory on Chestnut street.

Washington, D. C.—Barnes & Hendrick have dissolved partnership. Theodore E. Barnes has organized a new firm known as Barnes & Co., and has opened a salesroom at 1222 H street, N. W. He will retain the Pullman agency. David Hendrick has secured the Thomas agency and will continue his salesrooms at 1310 New York avenue.

Frederick, Md.—The Frederick Automobile Co. has been incorporated with a capital stock of $50,000.

Connersville, Ind.—The Lexington Motor Car Co. has increased its capital stock from $50,000 to $100,000.

Washington, D. C.—The National agency has been secured by Wine & Benson, 1310 New York avenue. They also handle the Moline.

St. Louis, Mo.—The Woods Motor Vehicle Co. has established a St. Louis branch, which will be housed in a new building at 425 North Euclid avenue.

Philadelphia, Pa.—The Keim Supply Co., of which E. C. Leeds is president, has removed to its new branch at 1227 Market street, headquarters of the company.

Lewiston, Me.—Plans are being prepared for a four-story brick block for the Maine Supply and Garage Co. The block will be 50 by 100, concrete construction, with brick walls.

Schenectady, N. Y.—The Sterling garage has opened for business at 425 Hamilton street, between Clinton and Lafayette streets. The firm is composed of Charles H. Tefft, Wayne P. Zent and Bert Carl.

Indianapolis, Ind.—Carl Wallerich, formerly connected with the Overland company at Indianapolis, and later sales manager for the Haynes company, of Kokomo, has again joined the Overland selling force. He has accepted a position as special agent, with headquarters at Toledo.

Boston, Mass.—M. H. Luce, assistant sales manager of the Chicago branch of the Velie, has been sent to Boston to open a branch there, the Corlew-Coughlin company no longer handling the car as an agency. Mr. Luce secured salesrooms at 92 Massachusetts avenue, with a repair shop on Waltham street.

Akron, O.—The American Tire and Rubber Co. has been incorporated with an authorized capital of $200,000 to manufacture and sell all kinds of rubber articles, including motor car and motor cycle tires. The incorporators are Frank L. Kryder, Adam Duncan, Gilbert C. Waltz, Harvey Musser and J. R. Huffman.

St. Louis, Mo.—The Studebakers have opened a temporary branch in St. Louis at Tenth and Locust streets, in the building formerly occupied by the Midland Automobile Co. Until recently the branch in St. Louis was conducted under the name of the E-M-F Automobile Co. T. L. Hausmann is manager.

Troy, N. Y.—John Burdich and Harold G. Hartwell have formed a partnership under the name of the Burdich & Hartwell Automobile Co. and have purchased the business of the Lusey Motor Car Co. The new firm will continue the business at the garage on River street occupied by the Lucey Motor Car Co.

Recent Incorporations

New York—Federal Motor Co., capital stock $400,000; incorporators Artemas Smith, Geo. W. May, G. W. Dorsey, Jr., and Philip Carpenter.

New York—Aerial Mfg. and Supplies Co., capital stock $50,000; to manufacture aeroplanes, gliders, motor cars, hydroplanes, etc.; incorporators Samuel Shethar, John Loughran and Charles H. Stoll.

New York—G & J Tire Co., capital stock $10,000; to manufacture tires, etc.; incorporators Herman Goldman and Arthur W. Weil.

Castleton, N. Y.—Belmont Motor Vehicle Co., capital stock $25,000; to manufacture, sell and repair motors, engines, vehicles, etc.; incorporators Harvey Ingalls, Arthur C. Cheney, and Oakey D. Woodford.

Los Angeles, Cal.—Whittier Garage Co., capital stock $10,000; directors Charles Saunders, F. A. Frantz, Gordon Saunders, J. A. Hiller, and J. F. McDill.

Wilmington, Del.—Great American Automobile Co., capital stock $1,500,000; incorporators Samuel Quinn, Jr., Charles N. Less, and L. H. Van Briggle.

Boston, Mass.—Blake Motor Co., capital stock $10,000; incorporators Archibald L. Stark, Dana L. Fuller, John V. Lynch, Andrew H. Vallee, and Frank L. Tupper.

Boston, Mass.—National Motor Car Co., capital stock $25,000; incorporators Ferdinand A. Wyman, Alphonso A. Wyman, and Helen E. Harrington.

Boston, Mass.—Connell & McKone Co., capital stock $15,000; incorporators William J. Connell, and James L. McKone.

Columbus, Ohio—Columbus Taxicab and Auto Livery Co., capital stock $10,000; to conduct a general motor car and livery garage business; incorporators Russell Floyd, R. H. Kissinger, R. P. Wallace and M. R. Edwards.

Farmingham, Ill.—Theo. Bass-Kingsland Co., capital stock $15,000; to deal in motor cars and accessories; incorporators Theo. Bass, R. M. Kingsland, W. L. Phillips.

Newark, N. J.—Auto Delivery Truck Mfg. Co., capital stock $50,000; to conduct a general motor car repair and machinery manufacturing establishment; incorporators N. Davidson, I. Rosenbaum, A. Tapper, and P. E. Drake.

Jersey City, N. J.—Peerless Tire Co., capital stock $25,000; to manufacture and deal in rubber goods, including supplies and accessories for motor cars.

Jersey City, N. J.—United Motor Charlotte Co., capital stock $2,000; to manufacture motor cars.

Chicago—Saurer Motor Trucks, capital stock $1,000,000; to manufacture motor cars and accessories; incorporator W. M. Thompson.

Chicago—Marion Motor Co. of Chicago, capital stock $10,000; to deal in motor cars and accessories; incorporators Robert E. Maypole, Alvar A. Landry, and George F. Carpenter.

Chicago—Woods Auto Service Co., capital stock $20,000; to manufacture motor cars and accessories; incorporators Henry M. Wales, Matt R. Pittman, and Sidney S. Gorham.

Brooklyn, N. Y.—Mac Auto Co., capital stock $10,000; to manufacture motor vehicles; incorporators Edward A. McShane, Mary A. McShane, and Thomas McCauley.

Yonkers, N. Y.—Low's Garage, capital stock $5,000; to deal in motor cars, motor cycles, accessories, etc.; incorporators William Lowa, Arthur Giessner and Chas. W. Lowa.

Jersey City, N. J.—Peerless Tire Co., capital stock $25,000; to manufacture rubber tires and rubber goods; incorporators Stewart Browne, Geo. Bazin, and Luciano L. Rubire.

Chicago—White Motor Car Co., capital stock $100,000; to deal in motor cars and supplies; incorporators James E. Plew, Robert M. Cutting and Charles W. Luttrell.

Current Motor Car Patents

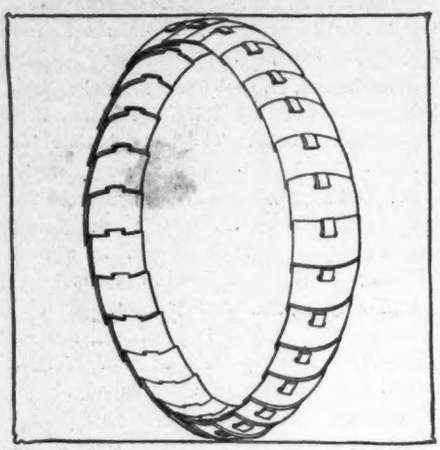


FIG. 1—NEW TIRE PROTECTOR

NEW Tire Protector—No. 967,704, dated August 16; to John A. Bailey and Claude F. Purkitt, Willows, Cal.—This patent covers a detachable metallic inner tube protector for pneumatic tires. As shown in Fig. 1, it comprises a series of links, each of which is provided with a hook at one end and a slot near the other end; these links are slidably connected, with the hook portion of one link in communication with the slot of another, and when entirely assembled form a flexible band conforming to the shape of a tire casing and adapted to fit between the inner tube and casing, for the purpose of protecting the tube from any nails, tacks or the like which might succeed in penetrating the casing.

Breather for Explosion Engines—No. 967,895, dated August 23; to Walter A. Frederick, Muskegon, Mich.—The device covered by this patent is a combined breather and filler tube for an engine crankcase, and as illustrated in Fig. 2, is provided with interior alternated and interlapped baffle plates, P, forming a free but zigzag air passage through the tube. The upper baffle plate has a sleeve, S, at the axis of the tube, with a stem, M, therein, which is threaded at its upper end. A cap, C, which engages the threaded end of this stem, may readily be removed for replenishing the oil supply in the crankcase, and when secured in place is spaced from the upper edge of the tube as shown.

Combined Jack and Truck—No. 968,316, dated August 23; to William Beckard, Allegheny, Pa.—The device to which this patent relates consists, as shown in Fig. 3, of a rectangular metal frame mounted on casters, having two screw-jacks mounted on the end members of the frame. The tubular side members F of the frame consist of telescoping tubes with a winged locking stud in the ends of the larger sections. By loosening these studs or setscrews the frame may be adjusted so that the jaws of the jack may get a suitable grip on almost any type of axle. The two end members have a central dip, so that the jacks may be lowered sufficiently for axles of almost any clearance, and so

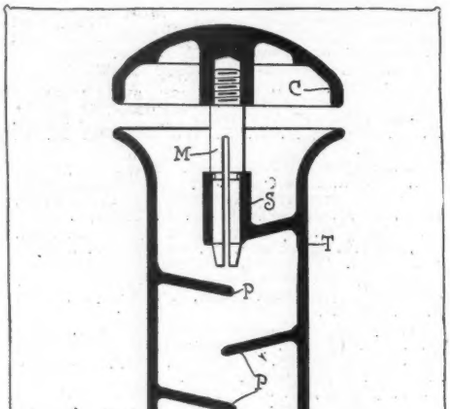


FIG. 2—BREATHER AND FILLER PIPE

that the weight on the jacks may be easily distributed upon the four casters. Combination jacks and trucks somewhat similar to this are being extensively used in motor car factories throughout the country for moving chassis and bodies about the factory, and devices of this kind should be found extremely useful in garages, etc., where it is necessary to move cars about with the wheels removed.

Ball Bearing for Vertical Shaft—No. 968,372, dated August 23; to George O. Leopold, Philadelphia, Pa.—The ball bearing to which this patent applies is especially adapted to a vertical shaft. As shown in Fig. 4, it comprises a lower bearing member, M, which is secured to the shaft S by means of the pin N, an upper member, E, loosely mounted on the shaft, a race of balls in suitable grooves between the two bearing members, and a case for adjustably holding the members in proper operative positions. The casing has an internal flange designed to engage the threaded periphery of the other bearing member M. The casing C is slotted vertically and the outer upper threaded end is beveled so that when the nut P is tightened the bearing member E is secured to the casing, thus providing suitable adjustment for the balls B between the two bearing members.

Fender for Motor Cars—No. 967,900, dated August 23; to Oscar C. Graff, Chicago, Ill.—This patent pertains to a bumper or fender for motor cars which, as shown in Fig. 5, comprises a rail, R, two supporting rods connected to the rail, guides wherein the rods are slidably supported, which guides are adapted to be secured to the forward ends of the side members of the motor car frame. There are recesses within the guides, each having one end open and the other end closed, and forming a tube in which the free ends of the supporting rods are adapted to slide. Springs are provided in these recesses which bear against shoulders on the supporting rods, and nuts having threaded engagement with the ends of the guides facilitate assembly. The chief advantage of this type of bumper over other types now in use lies in the simplicity and neatness of its design.

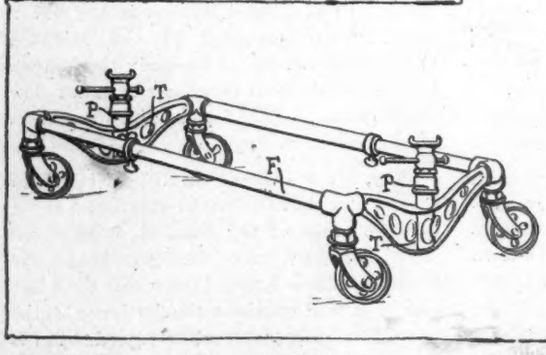


FIG. 3—COMBINED JACK AND TRUCK

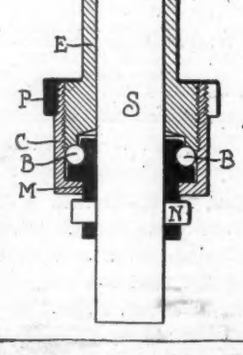


FIG. 4—VERTICAL SHAFT BALL BEARING

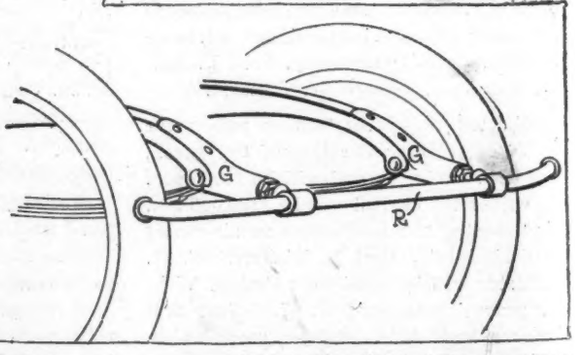


FIG. 5—NEW FENDER CONSTRUCTION